# Remedial Investigation Report

## Former Mud Run Gun Club Property

### 333 Pleasant Meadow Boulevard
### Cuyahoga Falls, Ohio 44221

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**Date of Preparation:**

February 16, 2016

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# 1.0 INTRODUCTION

## 1.1 General

The site is the location of the former Mud Run Gun Club located at 333 Pleasant Meadow Boulevard in Cuyahoga Falls, Summit County, Ohio. The parcel occupies approximately 5.58 acres (Parcel ID 35-01540). A detailed account of the site description and history can be found in the *Phase I Property Assessment,* August 18, 2009, prepared by SRW Environmental Services and in the *Sampling and Analysis Plan (SAP),* December 1, 2015, prepared by PANDEY Environmental, LLC (PANDEY). The City of Cuyahoga Falls purchased the property in November, 1999. The property is located at the western terminus of Pleasant Meadow Blvd. located off Wyoga Lake Road. The property is currently undeveloped with the exception of a wooden barn that is located on the eastern edge.

The Property is comprised of wooded hillsides which give way to an open meadow. Mud Brook Creek traverses through the Property from northeast to southwest.

The Property is gently rolling with elevations ranging from a high of 1,000-feet above mean sea level (amsl), to a low of 970-feet amsl based on a review of the 7.5-Minute Topographic Quadrangle Map of Hudson, Ohio. Surface water is directed into the Mud Brook Creek.

The Remedial Investigation Report serves to resolve data gaps as identified in the Sampling and Analysis Plan (SAP) as well as discuss sample results and conclusions that precede a preparation of a Remedial Action Plan (RAP) to remedy contamination issues that may exist on the subject property.

PANDEY personnel responsible for preparation of this report include Mr. Atul Pandey, P.E., Mr. Jason Martin, Project Manager, and Mr. Nick Vallera, Environmental Scientist. Resumes of Mr. Pandey, Mr. Martin and Mr. Vallera are presented in Appendix C of this report.

## 1.2 Purpose

PANDEY was retained by the Northeast Ohio Four County Regional Planning & Development Organization (NEFCO) on behalf of the City of Cuyahoga Falls to perform a Remedial Investigation following Ohio EPA Voluntary Action Program (VAP) standards for the property located at 333 Pleasant Meadow Boulevard, Cuyahoga Falls, Ohio 44221 in November, 2015. Previous to PANDEY's involvement with the project, SRW Environmental Services, Inc. (SRW) prepared a Voluntary Action Program (VAP) Phase I Environmental Site Assessment for the subject property in 2009 and then SRW also performed a Phase II Environmental Site Assessment per the requirements and guidelines of VAP in August 2011. More details on the previous SRW Phase I and Phase II Reports can be found in the SAP, December 1, 2015, prepared by PANDEY.

The purpose of this Remedial Investigation Report was to address data gaps presented in the SAP and propose an appropriate remedy to mitigate the contamination that is consistent with the proposed development and reuse of the subject property. This Remedial Investigation Report included an investigation of soil and sediment media through the installation of additional soil borings and hand augers bores.

## 1.3 Sampling Plan

The Sampling and Analysis Plan (SAP) for this Remedial investigation Report was completed by PANDEY on December 1, 2015 and is based upon the findings in the SRW Phase I and Phase II Reports as well as the site's historical use.

The sampling plan outlined multiple goals for field activities and sampling data. A summary of those goals is provided below:

- The sampling investigation will define a background concentration of Arsenic for the site. This will help to determine when elevated arsenic concentrations are consistent with natural or background concentrations in the Cuyahoga Falls area and not necessarily indicative of anthropogenic or manmade conditions. The previous Phase II investigation suggested a site

background of Arsenic of 31 ppm, which is likely to be rejected by the Ohio EPA due to the Ohio EPA promulgating a background level of 13 ppm for arsenic in Summit County. Furthermore, the existing SRW Phase II collected samples at depths of 10'-15' for calculations of site background, which is not permissible within the purview of VAP, since the impacted soils are within the 0'-2' horizon. Hence the goal is to recalculate the Arsenic background using soil samples from similar horizons.

- The sampling investigation will involve sampling select metals (driven by lead detections) and Poly Aromatic Hydrocarbons (PAHs) in soils on the property. During the previous Phase II investigation, several grid areas within identified areas were not sampled. These areas are within shot range of the former Gun Club operations and should be sampled with the goal to complete the data gaps in the soil media data. A total of 8 grid locations (Grids D-6, D-7, D-8, D-9, D-12, E-11, E-13 and H-11) will be sampled for soil from the zero (0) to one (1) foot horizon. All soil samples will be submitted for analysis of Lead, Nickel, Antimony, Arsenic and PAHs.

- In addition to collecting soil samples from the missing grid areas, soil samples will be collected from deeper depths (2' to 3' horizon) at the four (4) most contaminated grids. The previous Phase II only collected samples to a depth of two (2) feet. If the end use of the property involves the potential lowering of the grade and creation of a wetland, as discussed in preliminary site plans, then these deeper soil samples will be used to generate subsurface data to facilitate an ecological risk based remediation action plan, which may extend deeper than two (2) feet.

- The sampling investigation will include the collection of sediment samples. The Phase II investigation collected 2 sediment samples and compared them to appropriate sediment ecological risk standards for metals only even though Poly Aromatic Hydrocarbons (PAHs) were detected in the sediment media. A comparison of detected PAHs to the regulatory standard indicates at least one chemical of concern (benzo(a)pyrene) exceeds ecological standards. Five (5) sediment samples will be collected upstream of the former shooting stations and five (5) sediment samples will be collected downstream of the former shooting houses.

Hence, the goal is to collect up to ten (10) sediment samples to gauge if the sediment contamination is from up gradient sources or from the deposition of lead shots. All sediment samples will be submitted for analysis of Lead, Nickel, Antimony, Arsenic and PAHs. Subsequent collecting the ten (10) sediment samples mentioned above, four (4) additional sediment samples were collected in the central area of Mud Run Brook. These four (4) additional sediment samples were collected to gather information between the upstream and downstream sample locations and to gather more data regarding sediment contamination. All four (4) of the additional sediment samples were submitted for analysis of Lead and PAHs. Judging by the previous ten (10) sediment samples there was no reason to analyze for Nickel, Antimony or Arsenic, therefore they were left off of the additional four (4) samples analysis.

- The sampling investigation will include the collection of Toxicity Characteristics Leaching Procedure (TCLP) samples. This sampling is to determine their regulatory status as solid waste or hazardous waste. No such sampling was conducted during the previous Phase II investigation. The goal of the TCLP soil samples is to determine whether the soil can be classified as solid waste or hazardous waste, since this will have a significant impact on disposal procedures and costs. A total of six (6) TCLP samples will be collected in order to get a representation of the TCLP characteristics of the soils across the property.

### 1.4 Numerical Standards

Numerical standards for this Remedial Investigation Report were obtained from Ohio EPA's Voluntary Action Program rules (VAP) in OAC 3745-300-08. In the event that numerical standards were not available in this rule, Ohio EPA VAP Program's Chemical Information Database and Applicable Regulatory Standards (CIDARS) database was consulted. A listing of numerical standards used can be found in Appendix E. This listing also includes the source of the standard, and the date the standard went into effect. Because CIDARS databases are not dated, the date of download from Ohio EPA's website is listed as the standard date. Upon download of CIDARS information, numerical standards were compared to OAC 3745-300-08 as well as previous CIDARS downloads to ensure validity of any changes.

Numerical standards for this report concerning sediments were obtained from the Ohio EPA promulgated Ecological Sediment Reference Values (SRV) in accordance with OAC 3745-300-08(I)(2)(a). If numerical standards for a parameter were not listed in the Ohio SRV then in accordance with OAC 3745-300-08(I)(2)(b), standards were obtained from the consensus-based threshold effects concentration values contained in MacDonald, Ingersoll and Berger's "Development and Evaluation of Consensus-based Sediment Quality Guidelines for Freshwater Ecosystems" (January 2000). The EPA Region 5 Ecological Screening Levels were used for any other parameters that were not listed in the Ohio SRV or the MacDonald guidelines.

## 2.0 SITE BACKGROUND

The subject property is situated in an residential and commercial area Cuyahoga Falls in Summit County, Ohio. Located at 333 Pleasant Meadow Boulevard, the subject property is comprised of one (1) parcel (Parcel ID 35-01540) totaling approximately 5.58 acres. The property is currently undeveloped with the exception of a wooden barn that is located on the eastern edge.

According to standard historical resources, the Property was used as a gun club from the 1960s to the late 1990s. The shooting range included two trap fields, each with a "trap house" and shooting stations, and a 100-yard rifle range. According to published information, the typical shot size for trap ammunition is No. 7½, which reportedly has a maximum flight range of about 300 yards, depending upon the angle of elevation when firing. Other than construction of a barn, the remainder of the Property has never been developed. Adjoining properties were either residential or agricultural in current or prior uses.

The city of Cuyahoga Falls purchased the site in November 1999. A detailed account of the site description and history can be found in the *Phase I Property Assessment,* August 18, 2009, prepared by SRW Environmental Services, the *Phase II Property Assessment,* August 2011, prepared by SRW, and in the *Sampling and Analysis Plan (SAP),* December 1, 2015, prepared by PANDEY.

## 3.0 SAMPLING PROCEDURES

PANDEY conducted subsurface investigation on December 3rd and 4th, 2015. These investigations were conducted to examine the presence of contamination at the property and fulfill the scope of work presented in the SAP prepared by PANDEY.

The methods and procedures described in this section apply to the sampling and analysis of all subsurface media investigated by PANDEY during the course of this Remedial Investigation Report.

Laboratory Analytical Methods

VAP-certified laboratories are required to adhere to strict QA/QC procedures that have been predetermined and approved by Ohio EPA. The VAP certified laboratory Pace Analytical Services, Inc. in Indianapolis, IN (CL # 0065) performed analysis using the following analytical methods:

- Lead (Method 6010B)
- Arsenic (Method 6010B)
- Nickel (Method 6010B)
- Antimony (Method 6010B)
- Poly Aromatic Hydrocarbons (Method 8270 SIM)

The laboratory data, affidavits, case narrative, and chain of custody forms are provided in Appendix A of this report.

The Quality Assurance (QA) and Quality Control (QC) specifications for property located at the Former Mud Run Gun Club property are outlined herein. These specifications describe the QA/QC requirement set up for collecting and analyzing samples for chemical analyses. The QA/QC procedures were used to assess the accuracy, precision, completeness, representativeness, and comparability of the analytical data.

Field Sampling and Analysis Program

The field team conducting the assessment adhered to the field sampling and analysis program detailed below. It included specific requirements outlining the procedures to be followed in relation to sample handling, packaging, and shipping. It also set guidelines for field documentation procedures.

Sample Handling, Packaging, and Shipping Requirements

Upon collection, samples were placed into their appropriate sample containers. The exterior of the sample containers were wiped clean and affixed with the proper labeling. Samples collected at the site were uniquely labeled with an alphanumeric sample identifier. Sample label information was completed using waterproof black ink. The labels contained such information as:

- Sample identification based on the sampling location;
- Time and date of collection; and,
- Parameters to be analyzed;

The samples were packaged, put on ice in a cooler and driven to the Pace, Dublin, Ohio lab, which then packaged, sealed and shipped them to their Pace Indianapolis, IN laboratory. Chain of custody documentation accompanied each group of samples submitted to the lab.

Field Documentation Procedures

The field team was required to maintain a field notebook. The field notebook was used to collect information on site conditions, personnel at the site, and other pertinent information. Drilling and well installation information were recorded on log forms. These forms are presented in Appendix B of this report.

## 3.1 December 2015 Investigation

### 3.1.1 Soil Investigation to Resolve Data Gaps

A subsurface investigation was conducted on December 4, 2015 with the advancement of eight (8) soil bores (labeled SB-16, SB-17, SB-18, SB-19, SB-20, SB-21, SB-22 and SB-23) at the subject property. These eight (8) borings were advanced in order to gather data in specific areas that were not previously sampled during the SRW Phase II Investigation. The locations included the grid locations D-6, D-7, D-8, D-9, D-12, E-11, E13 and H-11 from the SRW Phase II Investigation. Each boring was advanced to a depth of one (1) foot below ground surface (bgs) and a soil sample was collected from the zero (0) to one (1) foot horizon at each location. Soil samples were submitted to Pace Indianapolis (CL# 0065) for analysis of Lead, Arsenic, Antimony, Nickel and Poly-Aromatic Hydrocarbons (PAHs). One (1) duplicate sample (labeled SB-18A) was collected from SB-18 during this investigation along with two (2) equipment blanks (labeled EB-1 and EB-2) for QA/QC purposes.

The sampling procedures of this investigation are discussed below. Soil samples were analyzed by Pace Analytical Services, an Ohio EPA VAP certified laboratory (CL# 0065). Analytical data and chain of custodies are provided in Appendix A of this report. Analytical data is summarized in Tables 1 and locations of the soil bores are shown in Figures 2 through 6 of this report.

Soil Sampling Methodology

Soil sampling was conducted using a Geoprobe direct push drilling rig with four (4) foot long continuous dual-tube sampling. The dual-tubes are disposable acetate sleeve liners.

Soil samples collected for laboratory analysis were placed in 4 oz. glass soil jars with Teflon lids and placed in an iced cooler. Samples selected for appropriate laboratory analysis were shipped to Pace Analytical Services, Inc., an Ohio EPA VAP certified laboratory. Equipment blanks were collected by running laboratory DI water across a dual-tube acetate sleeve liner from the GeoProbe and collecting the water into the appropriate laboratory glassware for submittal. The equipment blanks were collected for QA/QC purposes to ensure that no contaminants were detected on the liners used during soil

sampling. Laboratory chain of custody documentation and analytical results are included in Appendix A of this report.

### 3.1.2 Soil Investigation, Vertical Delineation Past 2' Horizon

A subsurface investigation was conducted on December 4, 2015 with the advancement of four (4) borings (labeled: SB-24, SB-25, SB-26 and SB-27) at the subject property. These borings were installed in the four (4) grid locations that had the highest concentration of Lead (lead being the driving contaminant of the select metals) from the SRW Phase II Investigation. Each soil sample was collected from a depth of 2 to 3 feet and analyzed for Lead only. These samples provide data past the 0'-2' horizon. This information was necessary in order to complete an ecological risk-based remediation, in the event that a wetland is created at the subject property.

The sampling procedures of this investigation are discussed below. Soil samples were analyzed by Pace Analytical Services, an Ohio EPA VAP certified laboratory (CL# 0065). Analytical data and chain of custodies are provided in Appendix A of this report. Analytical data is summarized in Tables 3 and locations of the soil bores are shown in Figures 2 through 6 of this report.

Soil Sampling Methodology

Soil sampling was conducted using a Geoprobe direct push drilling rig with four (4) foot long continuous dual-tube sampling. The dual-tubes are disposable acetate sleeve liners.

Soil samples collected for laboratory analysis were placed in 4 oz. glass soil jars with Teflon lids and placed in an iced cooler. Samples selected for appropriate laboratory analysis were shipped to Pace Analytical Services, Inc., an Ohio EPA VAP certified laboratory. Laboratory chain of custody documentation and analytical results are included in Appendix A of this report.

### 3.1.3 Arsenic Background Investigation

A subsurface investigation of the southern adjacent property was conducted on December 4, 2015 during remedial investigation activities with the advancement of fifteen (15) borings (labeled: SB-1, SB-2, SB-3, SB-4, SB-5, SB-6, SB-7, SB-8, SB-9, SB-10, SB-11, SB-12, SB-13, Sb-14 and SB-15) adjacent to the subject property. These borings were installed on the parcel directly south of the subject property which is known to be unimpacted by operations at the former Mud Run Gun Club. This investigation was conducted to establish the naturally occurring background level of arsenic in soils in the area of the subject property. In accordance with OAC 3745-300-07(H)(2), the location of the background arsenic samples was determined to be appropriate for collecting these samples. The soil type and horizon were the same as that of soils located on the subject property that were to be sampled. Soil was collected from the zero (0) to two (2) foot horizon at each boring location and submitted for analysis of Arsenic. By calculating an arsenic background using soil data from the adjacent parcel that is unimpacted and has the same soil types as the subject property, one can determine when elevated arsenic concentrations at the property are consistent with natural or background concentrations in the Cuyahoga Falls area and not necessarily indicative of anthropogenic or manmade conditions.

Analytical data and chain of custodies are provided in Appendix A of this report. Analytical data is summarized in Tables 2 and locations of the soil bores are shown in Figures 2 through 6 of this report.

Soil Sampling Methodology

Soil sampling was conducted using a Geoprobe direct push drilling rig with four (4) foot long continuous dual-tube sampling. The dual-tubes are disposable acetate sleeve liners.

Soil samples collected for laboratory analysis were placed in 4 oz. glass soil jars with Teflon lids and placed in an iced cooler. Samples selected for appropriate laboratory analysis were shipped to Pace Analytical Services, Inc., an Ohio EPA VAP certified laboratory. Laboratory chain of custody documentation and analytical results are included in Appendix A of this report.

### 3.1.4 Mud Run Sediment Investigation

A subsurface investigation was conducted on December 3, 2015 with the collection of ten (10) hand auger sediment samples (labeled SD-1, SD-2, SD-3, SD-4, SD-5, SD-6, SD-7, SD-8, SD-9 and SD-10) at the subject property. These ten (10) samples were collected from the sediment that exists in Mud Run Brook that flows northeast to south-southwest across the subject property. The samples were collected to gather data for comparison to the appropriate sediment ecological risk standards as well as to determine if any resulting exceedances were anthropogenic or not. Samples SD-1, SD-2, SD-3, SD-4 and SD-5 were collected upstream of the former Mud Run Gun Club, while SD-6, SD-7, SD-8, SD-9 and SD-10 were collected downstream of the former gun range. Locations were selected so that upstream results could be compared to downstream results in order to determine if chemical detects were a result of former operations at the subject property or were naturally occurring. Each boring was advanced to an approximate depth of one (1) foot with the sediment being collected from the zero (0) to one (1) foot horizon at each location using a hand auger. However, during the sampling event it was found that only approximately six (6) inches of sediment was found in most areas along Mud Run Brook. See also section 4.4 of this report for sediment sample results.

Sediment samples were submitted to Pace Indianapolis (CL# 0065) for analysis of Lead, Arsenic, Antimony, Nickel and Poly-Aromatic Hydrocarbons (PAHs). One (1) duplicate sample (labeled SD-10A) was collected from SD-10 during this investigation for QA/QC purposes.

Subsequent to the collecting of the ten (10) sediment samples SD-1 through SD-10, an additional four (4) sediment samples were collected from the central part of Mud Run Brook on December 30, 2015. The additional four (4) sediment samples labeled SD-11, SD-12, SD-13 and SD-14 were collected in order to gather more information about the sediment in the central part of Mud Run Brook located between the upstream and downstream samples. Sediment samples SD-11 through SD-14 were submitted to Pace Indianapolis (CL# 0065) for analysis of Lead and PAHs. Nickel, Antimony and Arsenic were not analyzed in these four (4) samples due to the results from the prior ten (10) sediment samples.

Sediment Sampling Methodology

Sediment sampling was conducted using a hand auger. Decontamination procedures included washing the hand auger after each sample was collected. Samples were placed in 4 oz. glass soil jars with Teflon lids and placed in an iced cooler. Laboratory chain of custody documentation and analytical results are included in Appendix A of this report. Analytical data is summarized in Table 5 and locations of the soil bores are shown in Figures 2 through 6 of this report.

### 3.1.5 TCLP Investigation

A subsurface investigation was conducted on December 3, 2015 with the advancement of eighteen (18) hand auger borings that were composited into six (6) samples (labeled TCLP-1, TCLP-2, TCLP-3 and TCLP-4) at the subject property. The subject property was split into six (6) large grids for TCLP sampling, as demonstrated on Figure 2. Three (3) hand auger borings were installed within each individual grid from the zero (0) to six (6) inch horizon. Once the hand auger samples were collected, they were composited into a plastic Ziploc bag per each grid area. The soils in each bag were then mixed thoroughly for no less than sixty (60) seconds before being placed into 4 oz. glass soil jars with Teflon lids. Soil samples were submitted to Pace Indianapolis (CL# 0065) for Toxicity Characteristic Leaching Procedure (TCLP) analysis of Metals and PAHs. The purpose of collecting a composite sample from each grid area across the site was to get TCLP data in order to determine proper waste disposal classification for soils across the property since no TCLP data was collected during SRW's investigations. The TCLP data is crucial information to have prior to remedy since it will be a large cost determinant during remedial activities.

The sampling procedures of this investigation are discussed below. Soil samples were analyzed by Pace Analytical Services, an Ohio EPA VAP certified laboratory (CL# 0065). Analytical data and chain of custodies are provided in Appendix A of this report. Analytical data is summarized in Table 4 and locations of the soil bores are shown in Figures 2 through 6 of this report.

TCLP Sampling Methodology

TCLP sampling was conducted using a hand auger. Decontamination procedures included washing the hand auger after each sample was collected. The soil from the hand auger buckets was composited into a plastic Ziploc bag per each grid area. The bag for each grid was then mixed for a minimum of sixty (60) seconds to ensure thorough compositing of the soil. Once the soils were mixed for each grid area, the samples were placed in 4 oz. glass soil jars with Teflon lids and placed in an iced cooler. Laboratory chain of custody documentation and analytical results are included in Appendix A of this report.

Sampling forms / Soil Bore Logs are included in Appendix B of this report.

# 4.0 REMEDIAL INVESTIGATION FINDINGS

## 4.1 QA/QC Data Review

A review of QA/QC issues was performed in order to determine if any discrepancies were noted that would have the potential to impact the findings of this report. During the initial release of Pace lab report 50133848, it was noted that multiple samples analyzed for PAHs displayed an Internal Standard (IS) qualifier. This included the following samples and their respective PAH analyte: SD-6:0-1 (Benzo(a)pyrene), SD-7:0-1 (Naphthalene), TCLP-2:0-0.5 (Chrysene), TCLP-3:0-0.5 (Chrysene), TCLP-4:0-0.5 (Chrysene), TCLP-5:0-0.5 (Chrysene), TCLP-6:0-0.5 (Naphthalene), SB-16:0-1 (Chrysene), SB-17:0-1 (Chrysene), SB-18:0-1 (Chrysene), SB-18A:0-1 (Chrysene) and SB-19:0-1 (Chrysene). According to Pace's Ohio VAP SOP, any sample with an "IS" qualifier issue must be re-analyzed. The supervisor of the Ohio VAP QA Office for Pace Analytical reviewed the affected "IS" qualified samples and confirmed that each had indeed been verified by duplicate analysis. An additional qualifier, "C0" accompanies all of the "IS" qualified samples. The "C0" qualifier signifies that each result was confirmed by a second analysis. Therefore, the results displayed in the Pace Report 50133848 that show an "IS" and "C0" qualifier (located in Appendix A) are accurate. No other quality control issues or discrepancies were noted which would have had the potential to impact the findings of this report. Each sample was individually reviewed to ensure the findings and conclusions of the report are valid.

None of the soil samples or sediment samples analyzed resulted in parameters with MDLs above the VAP GDCSS.

## 4.2 Soil Results from the Missing Grid Locations

Various chemicals of concern were identified in the soil media at the subject property during the remedial investigation. References to soil standards in the following discussion are to VAP Generic Direct Contact Soil Standards (GDCSS) for single chemicals in a residential land use.

Soil samples were collected on December 4, 2015. A total of eight (8) soil borings (SB-16 through SB-

23) were installed at the property in order to gather data in specific areas that were not previously sampled during the SRW Phase II Investigation. All soil borings were installed from zero (0) to one (1) foot below ground surface. Nine (9) soil samples (including one duplicate, SB-18A) were submitted for laboratory analysis of select metals and PAHs by Pace Analytical (CL #0065).

Detections of Lead and Arsenic in SB-16, SB-17 and SB-19 showed exceedances of the VAP GDCSS for residential land use. Detections of multiple PAH chemicals, including Benzo(a)pyrene, from SB-16, SB-17, SB-18, SB-18A and SB-19 showed exceedances of the applicable VAP standards as well. The results of these soil samples demonstrate that the 0 to 1 foot horizon of soil is contaminated in these locations. SB-20, SB-21, SB-22 and SB-23 showed no exceedances of applicable VAP standards for any chemicals of concern.

On the basis of contaminated areas (refer to Figure 4) across the subject property and as a result of the contamination being spread widely and randomly across the site (non-point source contamination), it is our recommendation that the top one (1) to two (2) feet of soil across the entire site be excavated and disposed off-site. In order for the contaminated soil media across the property to be properly classified for disposal, TCLP sampling was conducted as discussed in Section 3.1.5. Results of the TCLP sampling can be found in Section 4.6 of this report.

### 4.3 Arsenic Background Soil Results

Results of the analytical data from the fifteen (15) soil borings installed on the adjacent southern parcel during the arsenic background investigation were used to calculate a background level for arsenic in soils at the subject property in accordance with OAC 3745-300-07. The results ranged from 8.4 to 26.6 ppm with a background mean of 17.81 ppm. The standard deviation of the dataset was found to be 5.248 with a coefficient of variation of 0.295. Thus, the maximum allowable upper limit for background concentration of arsenic was calculated in accordance with OAC 3745-300-07 as 28.3 ppm (i.e., mean + 2*standard deviation).

The naturally occurring background concentration of arsenic in the soil media at the subject property has been calculated to be 28.3 ppm. This value may be used as a basis for establishing preliminary

remediation goals and also as an upper limit for arsenic concentrations at the subject property. The ProUCL Statistic Data Table for calculating the Arsenic Background is located in Appendix D and the Arsenic Sample Summary results can be found in Table 2.

Samples were collecting using a GeoProbe drilling rig with dual tube acetate liner samplers which were then placed in glass soil jars, and transported to the laboratory in an iced cooler. Statistical tests and bore logs for the background arsenic samples are available in Appendix B of this report, and the lab analytical data can be found in Appendix A of this report.

Ohio EPA VAP's Evaluation of Background Metal Soil Concentrations in Summit County – Akron Area (March, 2015) was reviewed. This document states that the representative background concentration of arsenic in Summit County as a whole is 13.5 mg/kg.

### 4.4 Sediment Results

Sediment samples (labeled SD-1 through SD-10, including a duplicate SD-10A) were collected during site investigations conducted on December 3, 2015 to evaluate the sediment of Mud Run Brook that flows across the subject property, including the area of the former shooting range operations. The stream flows across the site from the northeast to the southwest bisecting the property between the former shooting house areas and the hillside where targets and ammunition were fired into. The sediment samples collected from Mud Run Brook were collected using a hand auger from the 0 to 6 inch horizon (initially reported to be to 0-1 foot on the SAP, but only approximately six inches of sediment was detected during the sampling event in Mud Run Brook) and submitted for laboratory analysis of select metals and PAHs by Pace Analytical (CL# 0065). One duplicate sediment sample (labeled SD-10A) was collected during the sediment sampling event for QA/QC purposes.

Mud Run Brook bisects the subject property in the center of the former shooting operations area. As a result, it was critical to analyze sediment upstream of the former shooting operations area and downstream of the former shooting operations area in order to make an accurate comparison of sediment data to determine if analytical results were a direct result of anthropogenic (man-made) or non-anthropogenic source. Sediment samples SD-1 through SD-5 were collected upstream of the

former shooting operations area, east of the shooting houses (reference Figures 2 and 5). Sediment samples SD-6 through SD-10 were collected downstream of the shooting operations area, west of the shooting houses. The goal of sampling the sediment in Mud Run Brook was to determine if chemical concentrations were a result of former operations at the Mud Run Gun Club or of non-point source natural processes (urban runoff from areas located further upstream, etc.).

Results from the ten sediment samples displayed elevations of Lead and multiple PAHs in exceedance of their respective sediment standards, discussed in Section 1.4. However, analytical results indicated that all chemicals of concern in sediments were below VAP regulatory standards for unrestricted land use.

Due to one distinctively high result of lead detected in SD-5 at 131 ppm, it was decided that further sampling was necessary to accurately gather information comparing sediments across the site between the sediment upstream of the former shooting range operations versus sediment downstream of the former shooting operations. Chemicals of concern for the additional sediment samples would include Lead and PAHs based on results of the initial ten (10) sediment samples. A graphical analysis of each sediment sample (SD-1 through SD-10A) was performed (see Appendix G) for Lead and all detected PAHs. The analytical results and graphs compare the data of the upstream sediment samples to the downstream sediment samples. These graphs and results were used to determine the chemicals of concern for the additional four (4) sediment samples that were collected.

Sediment samples (labeled SD-11 through SD-14) were collected during a site investigation conducted on December 30, 2015 to obtain data to evaluate the sediment of Mud Run Brook that runs across the subject property. The sediment samples collected from Mud Run Brook were collected using a hand auger from the 0 to 1 foot (although the approximate depth of sediment is only around 6 inches judging by other sediment sample collections) deep and submitted for laboratory analysis of Lead and PAHs by Pace Analytical (CL# 0065). The results of the sediment samples labeled SD-11, SD-12, SD-13, and SD-14 were inconsistent and did not confirm to any trends with the other upstream and downstream samples. SD-11 showed multiple PAHs in exceedance of their respective sediment screening value standards, however no PAH exceedances were observed in the sediments from SD-12, SD-13 or SD-

14. The highest lead concentration of these four (4) samples was observed in SD-11 as well with a detection of 20.7 ppm, which is below the Ohio SRV standard of 47 ppm.

The results of all the sediment samples (SD-1 through SD-14) indicate that there are lead and PAH contaminants in exceedance of their respective standard; across multiple areas of Mud Run Brook. This contamination appears to be directly related to the operations at the former Mud Run Gun Club firing range. Visual observations made during field sampling activities, sediment sampling collection and site reconnaissance provide evidence that there is lead shot and fragments of clay pigeons deposited in the sediments across Mud Run Brook at the subject property. The results of the sediment sampling also show that the bend in Mud Run Brook that occurs on the western part of the property (as the creek bends from flowing west to south) is causing deposition of contaminated sediments. This natural bend in the creek is directly downstream from the former firing range area where lead shot and clay pigeons have been observed in sediments. The clay pigeon fragments and lead shot are being deposited into thicker sediments as the creek's flow rate slows down around the bend, causing deposition of the sediments as a result.

### 4.5 Soil Results from Vertical Delineation Past 2'

A subsurface investigation was conducted on December 4, 2015 with the advancement of four (4) borings (labeled: SB-24, SB-25, SB-26 and SB-27) at the subject property. These borings were installed in the four (4) grid locations that had the highest concentration of Lead (lead being the driving contaminant of the select metals) from the SRW Phase II Investigation. Each soil sample was collected from a depth of 2 to 3 feet and analyzed for Lead only. These samples provide data past the 0'-2' horizon. This information was necessary in order to complete an ecological risk-based remediation, in the event that a wetland is created at the subject property.

Results of the vertical delineation soil samples collected from the 2 to 3 foot horizon show no detections of lead in exceedance of the Ohio VAP GDCSS for unrestricted land use. However, in the event that a wetland is created at the subject property, the lead detection in SB-25 (51.4 ppm) would be in exceedance of the Ohio background Sediment Reference Value (EOLP) of 47 ppm.

### 4.6 TCLP Results

Results from the subsurface investigation that was conducted on December 3, 2015 with the advancement of eighteen (18) hand auger borings that were composited into six (6) samples (labeled TCLP-1, TCLP-2, TCLP-3, TCLP-4, TCLP-5 and TCLP-6) at the subject property demonstrate that the soil across the site is considered hazardous waste. Results from TCLP-1 detected lead at 706 mg/L, TCLP-2 detected lead at 130 mg/L, TCLP-3 detected lead at 168 mg/L and TCLP-5 detected lead at 30.6 mg/L. TCLP-4 and TCLP-6 detected lead at levels below the TCLP limit of 5.0 mg/L. However, due to the majority of the subject property soils failing TCLP limits for lead, all soils should be considered as hazardous waste if excavated for disposal off-site.

As a result of all soils on the subject property being classified as hazardous waste, stabilization/solidification (commonly referred to as S/S treatment) of the soil is recommended prior to disposal in order for the soil to be accepted by a landfill as solid waste. The solidification process involves mixing a binding reagent into the contaminated soil media in order to immobilize the hazardous constituents. Inorganic binding reagents commonly used include Portland cement, cement kiln dust (CKD), lime, lime kiln dust (LKD), limestone, fly ash, slag, gypsum and phosphate mixtures. Most mixes are a blend of the commonly used inorganic binding reagents. Once the soil has been stabilized and the hazardous constituents are immobile, the soil can then be stockpiled, transported and disposed of classified as non-hazardous solid waste.

Further details regarding the S/S treatment process, transportation and disposal of the contaminated soil media are provided in the Remedial Action Plan (RAP).

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

This remedial investigation was conducted to locate the presence or absence of subsurface contamination and to estimate the extent of contamination to be remediated on the subject property. Analysis and interpretation of data gathered as part of this property assessment has led to the following conclusions:

- Multiple detections of chemicals of concern, including Lead, Arsenic and Benzo(a)pyrene were reported in soil samples in exceedance of their associated VAP single chemical residential land use direct contact standards. The detection of contaminated soils during this remedial investigation along with information from the previous SRW Phase I and Phase II reports demonstrates that the soil media is contaminated across the subject property to an approximate depth of one (1) to two (2) feet below ground surface (bgs). TCLP samples confirm that the contaminated soil across the site must be classified as hazardous waste. We recommend performing soil stabilization/solidification treatment (S/S treatment) to immobilize the hazardous constituents of the soil, and then removing the soil media across the property, to an approximate depth of one (1) to two (2) feet deep, off-site to a licensed landfill disposal facility as municipal solid waste. More details concerning the remedial activities of this investigation can be found in the Remedial Action Plan (RAP) document.

- Detections of chemicals of concern, including lead and multiple PAHs were reported in sediment samples across Mud Run Brook in exceedance of the associated sediment standards found, in accordance with OAC3745-300-800(I)(2), in the Ohio SRV, MacDonald, Ingersoll & Berger's Document, and in the EPA Region 5 Screening Levels. The detections of these chemicals of concern in the sediment of Mud Run Brook can be attributed to the former operations at the Mud Run Gun Club judging by visual observation of lead shot and clay pigeon fragments being deposited into the creek and sediment. Sediment sample results were used to delineate the area of the creek that was directly affected by former shooting operations. However, no clear pattern of contamination distribution was observed. Multiple areas of the creek showed contamination, with a concentration near the area of the eastern shooting house and the area surrounding the distinct bend in Mud Run Brook where more sediment (along with

lead shot and clay pigeon fragments) were deposited. We recommend remediating the sediment in Mud Run Brook on the subject property starting from location SD-5, continuing downstream until the subject property boundary. Sediment will be excavated to an approximate depth of zero (0) to six (6) inches deep. More details concerning the remedial activities of this investigation can be found in the RAP document.

On the basis of the observations made and the information obtained during the course of this assessment, it is our opinion the source of contamination observed during soil and sediment sampling by the detection of multiple chemicals in the soil and sediment media is originating from historical operations of the former Mud Run Gun Club. It is recommended that the area of contaminated sediment and soil be removed by excavation and transportation to a licensed waste disposal facility for lawful disposal. This remedy is further defined in the Remedial Action Plan (RAP).

## 6.0 STATEMENT OF LIMITATIONS AND QUALIFICATIONS

The subject property has been examined based on best professional judgment and current Remedial Investigation evaluation methods. These methods include requirements of the Ohio Voluntary Action Program, ASTM Standards, and other professional site assessment guidelines.

The evaluations, assessments, and conclusions stated in this report represent judgment and/or opinions which are based solely upon visual and analytical observations made during the site investigation and public records search including information from previous environmental investigations.

Any reuse of this information, assessment, or conclusions contained herein by parties other than those mentioned in Section 1 of this report, shall be at the sole risk or liability of the party undertaking the reuse of this information.

PANDEY makes no claim that the areas of contamination discovered as a result of the remedial investigation report investigations represent the only possible areas of contamination at the site. The sampling locations were chosen based on a review of historical resources, previous environmental assessments, interviews, and a visual site reconnaissance.

Evidence has not been provided to PANDEY which suggests the likelihood of contamination at areas of the property other than those investigated to date. However, undocumented and/or unreported spills and/or releases which may have the potential to negatively impact the subject property may have occurred at the subject property over the course of its history.

PANDEY has conducted this investigation in a manner consistent with sound engineering practices and with professional judgment. This report does not attempt to evaluate past or present compliance with federal, state, and local environmental or land use laws and regulations except to the extent the compliance relates to releases of hazardous substances and/or petroleum and to the factors which may affect the eligibility of the property under the VAP. PANDEY makes no guarantees regarding the completeness or accuracy of any information obtained in review of public or private files.

SIGNATURE PAGE

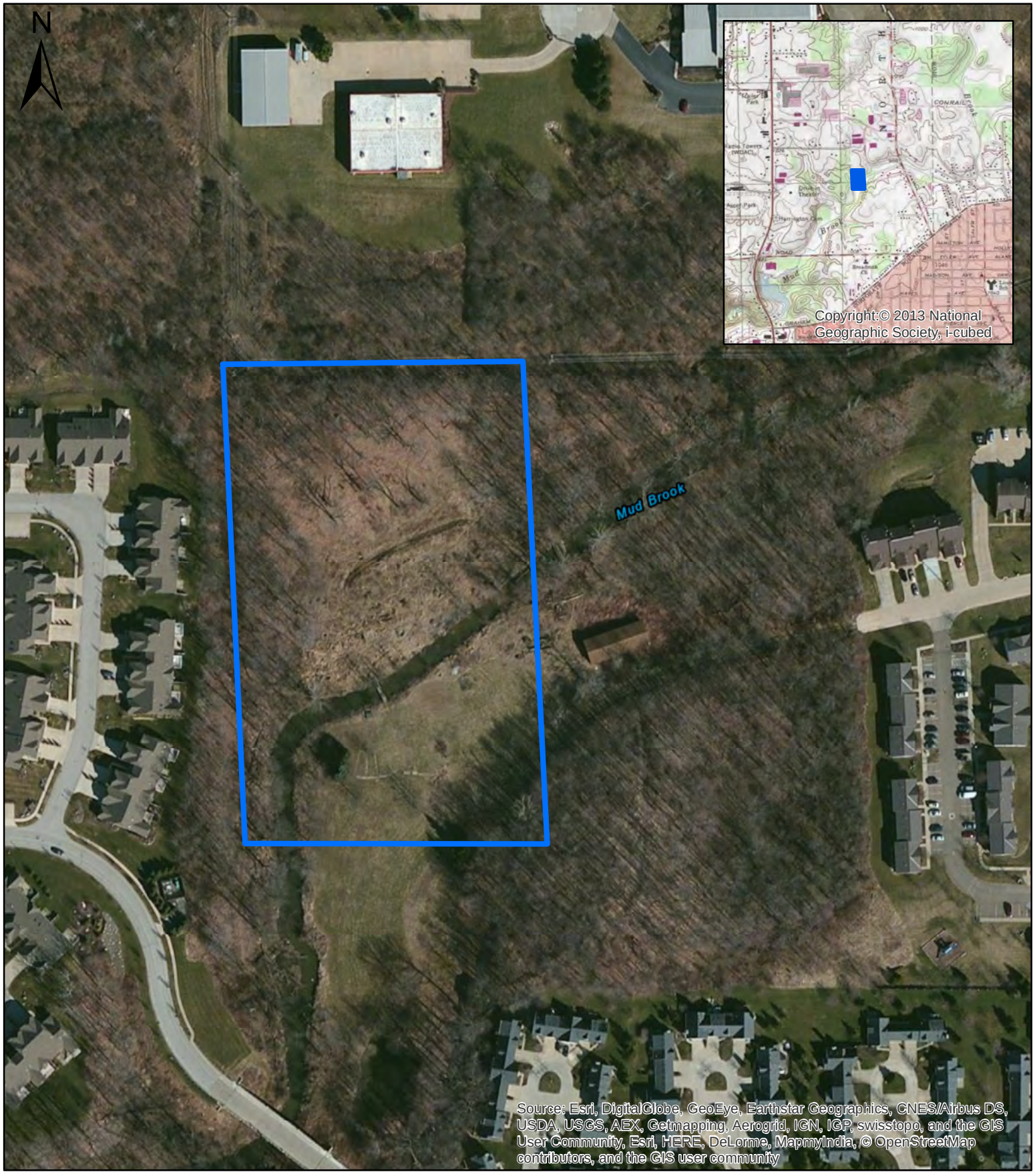
We are pleased to have had this opportunity to be of service to you. Please call the undersigned if you have any questions.

Atul Pandey, P.E. Date: 2/16/2016

President

| | |
|---|---|
| Type of Report: | Remedial Investigation Report |
| Address: | Former Mud Run Gun Club Property<br>333 Pleasant Meadow Blvd.<br>Cuyahoga Falls, Ohio |
| Date: | February 16, 2016 |

# FIGURES




Property Boundary

0 80 160 240 320 400 Feet

**FORMER MUD RUN GUN CLUB**
**CUYAHOGA FALLS, OHIO**

**FIGURE 1**
**PROPERTY LOCATION MAP**
**SUMMIT COUNTY**

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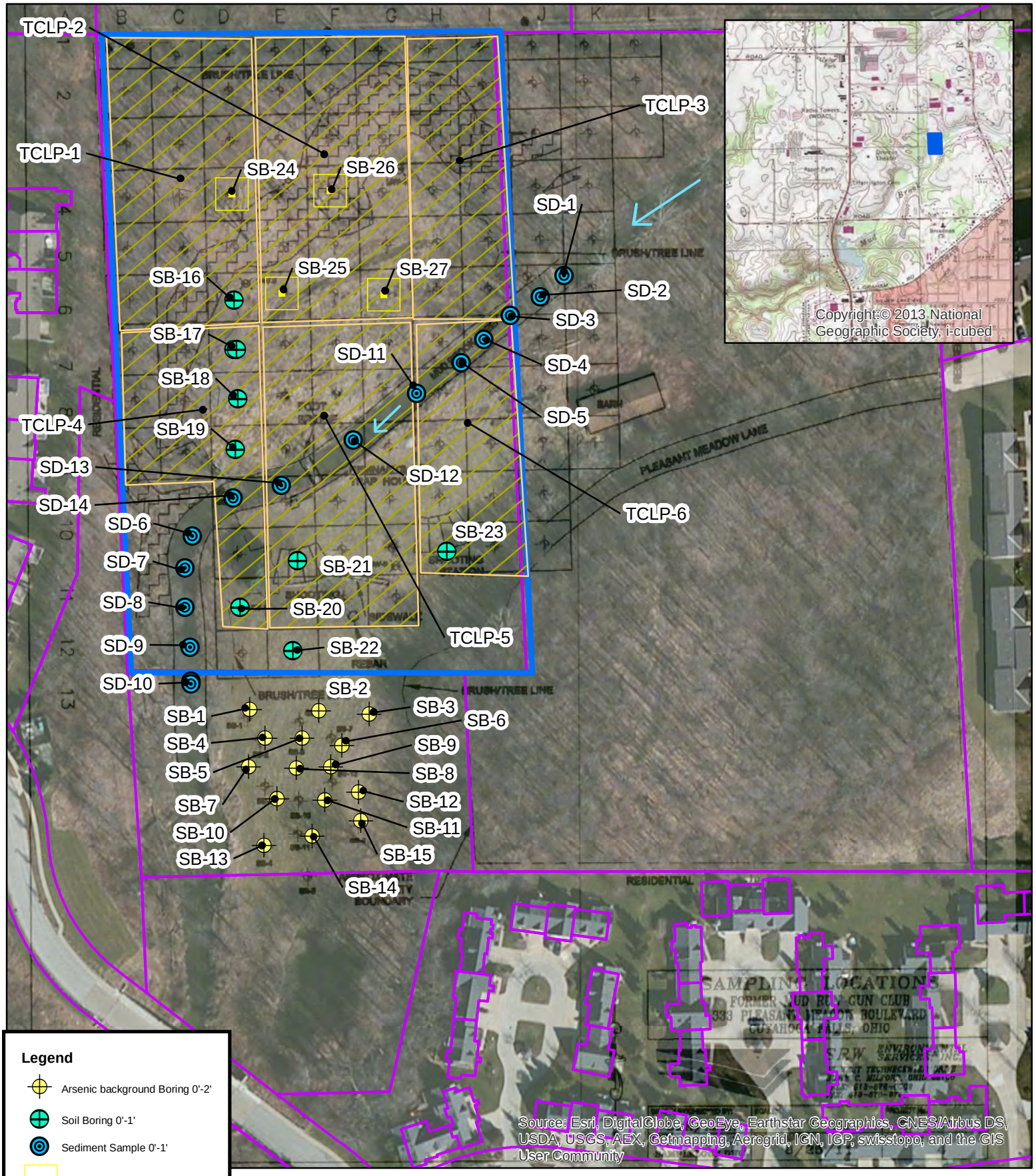


**FORMER MUD RUN GUN CLUB**
**CUYAHOGA FALLS, OHIO**

**Figure 2**
**Sampling Locations Map**
**Remedial Investigation Report**

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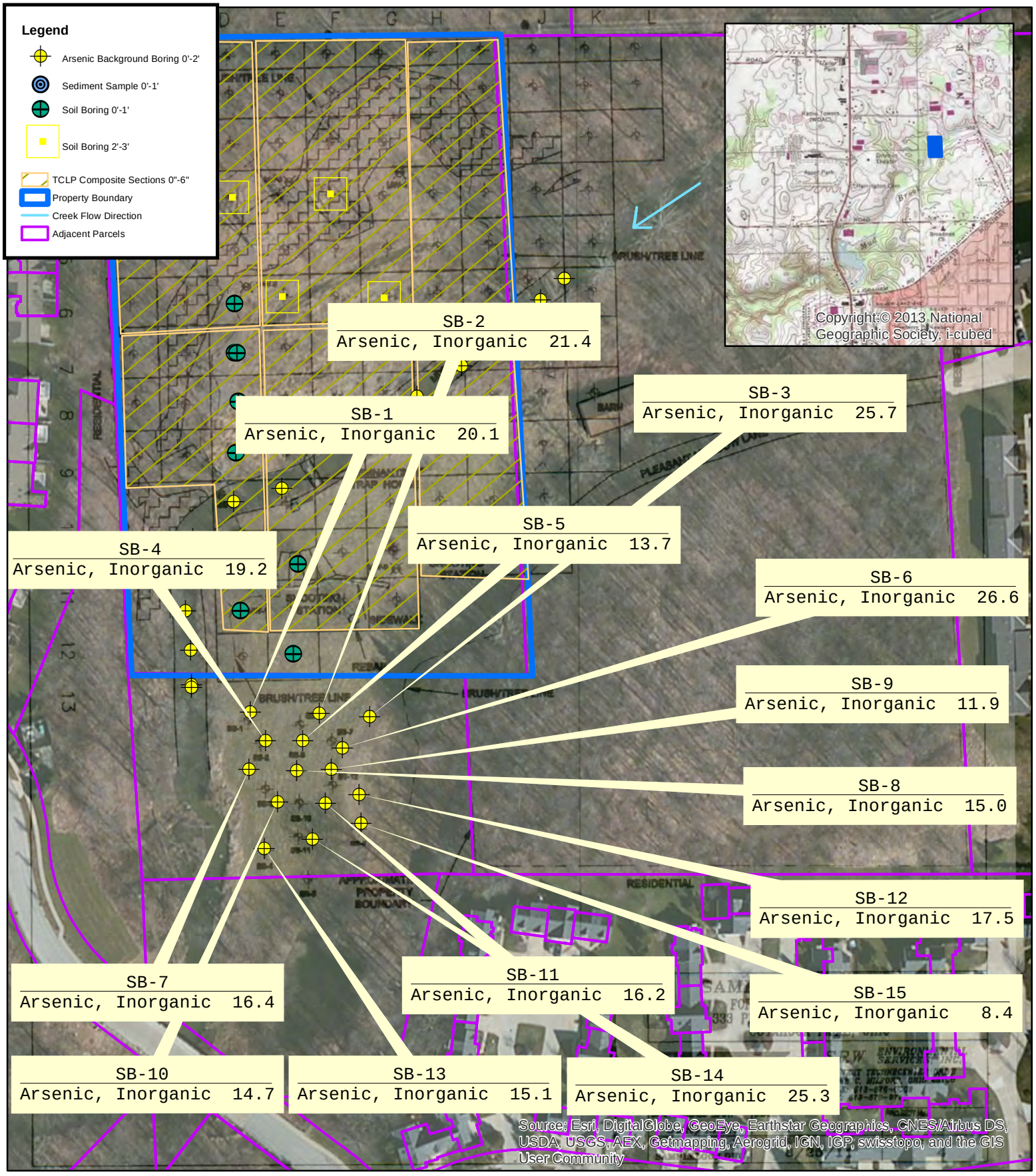


Calculated Arsenic Background = 28.3 ppm
All results are in mg/kg (ppm)

N

0 40 80 160 240 320 Feet

**FORMER MUD RUN GUN CLUB**
**CUYAHOGA FALLS, OHIO**

**Figure 3**
**Arsenic Background Data Map**
**Remedial Investigation Report**

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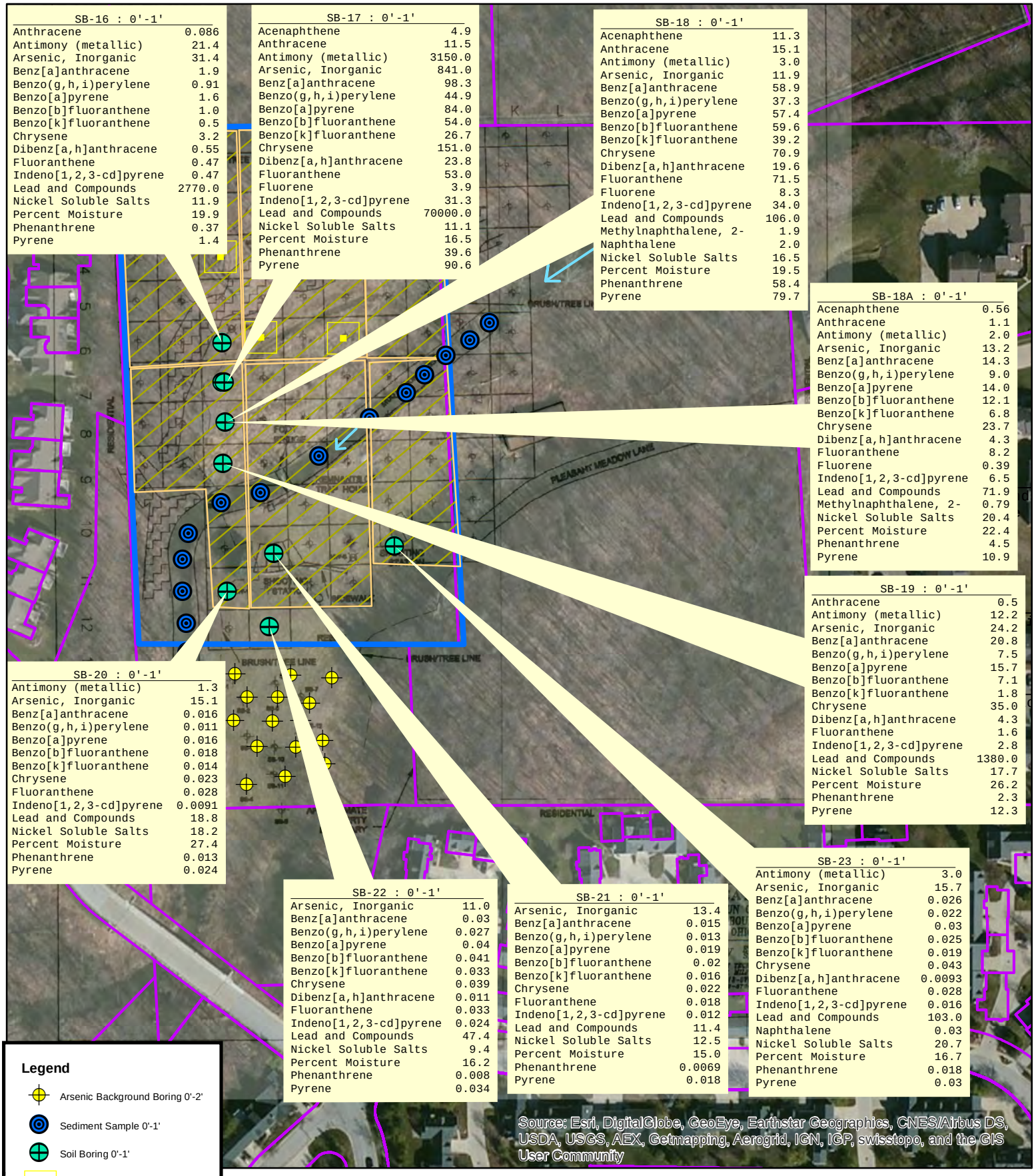


All results are in mg/kg (ppm)

**FORMER MUD RUN GUN CLUB**
**CUYAHOGA FALLS, OHIO**

**Figure 4**
**Grid Soil Sampling Data Map**
**Remedial Investigation Report**

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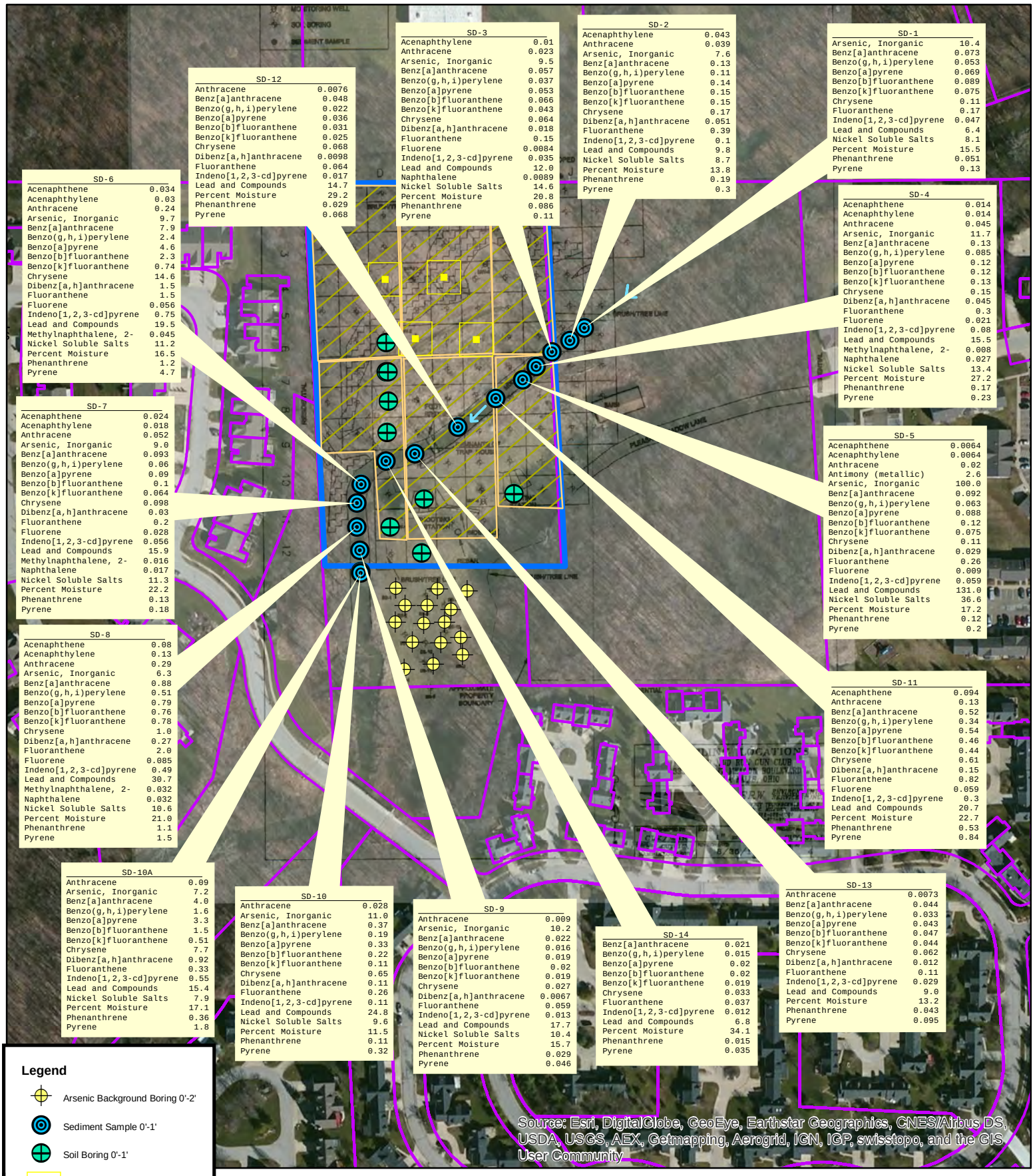


All results are in mg/kg (ppm)

# FORMER MUD RUN GUN CLUB
# CUYAHOGA FALLS, OHIO

## Figure 5
## Sediment Sampling Data
## Remedial Investigation Report

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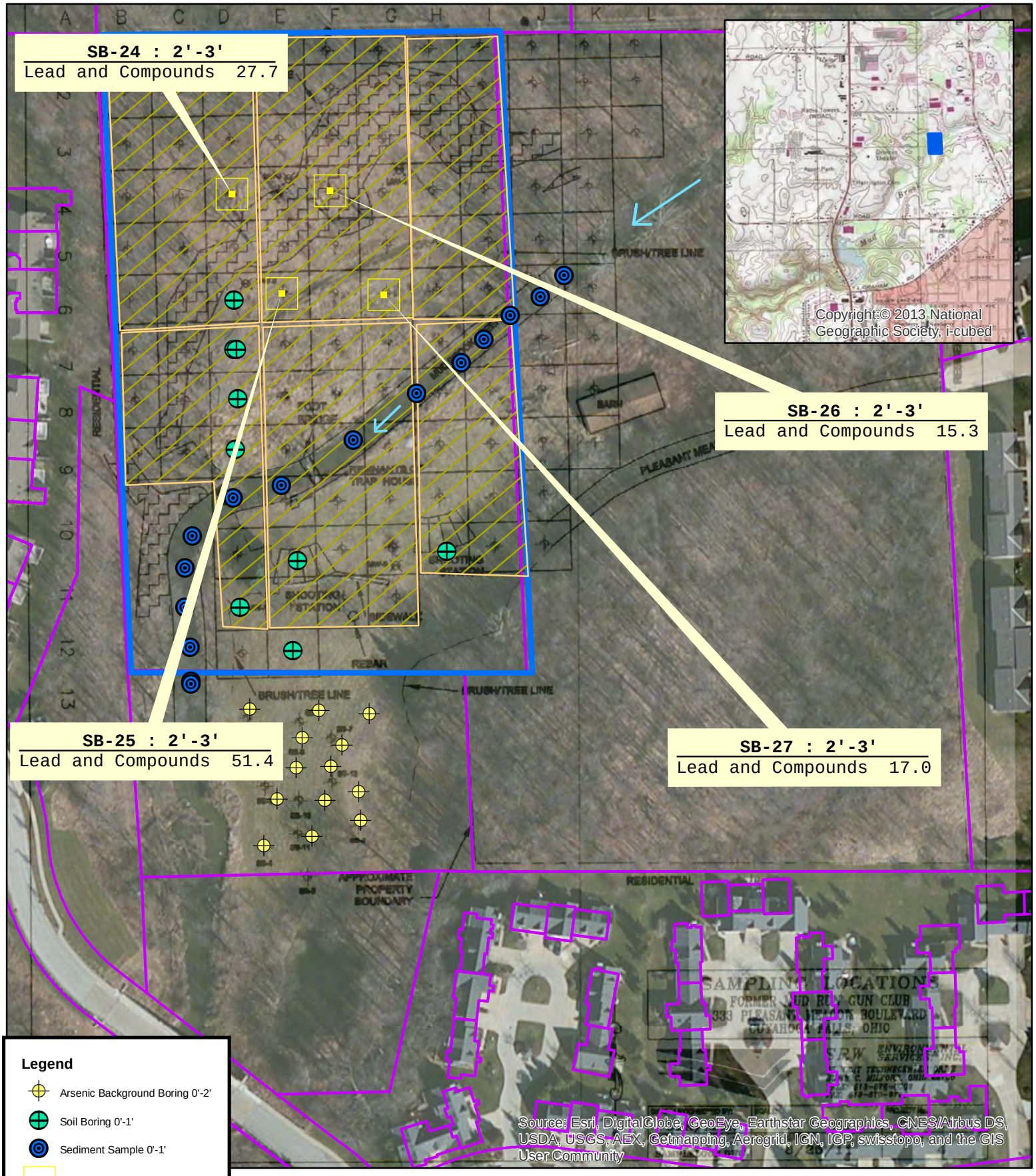


All results in mg/kg (ppm)

**FORMER MUD RUN GUN CLUB**
**CUYAHOGA FALLS, OHIO**

**Figure 6**
**Vertical Delineation Data Map**
**Remedial Investigation Report**

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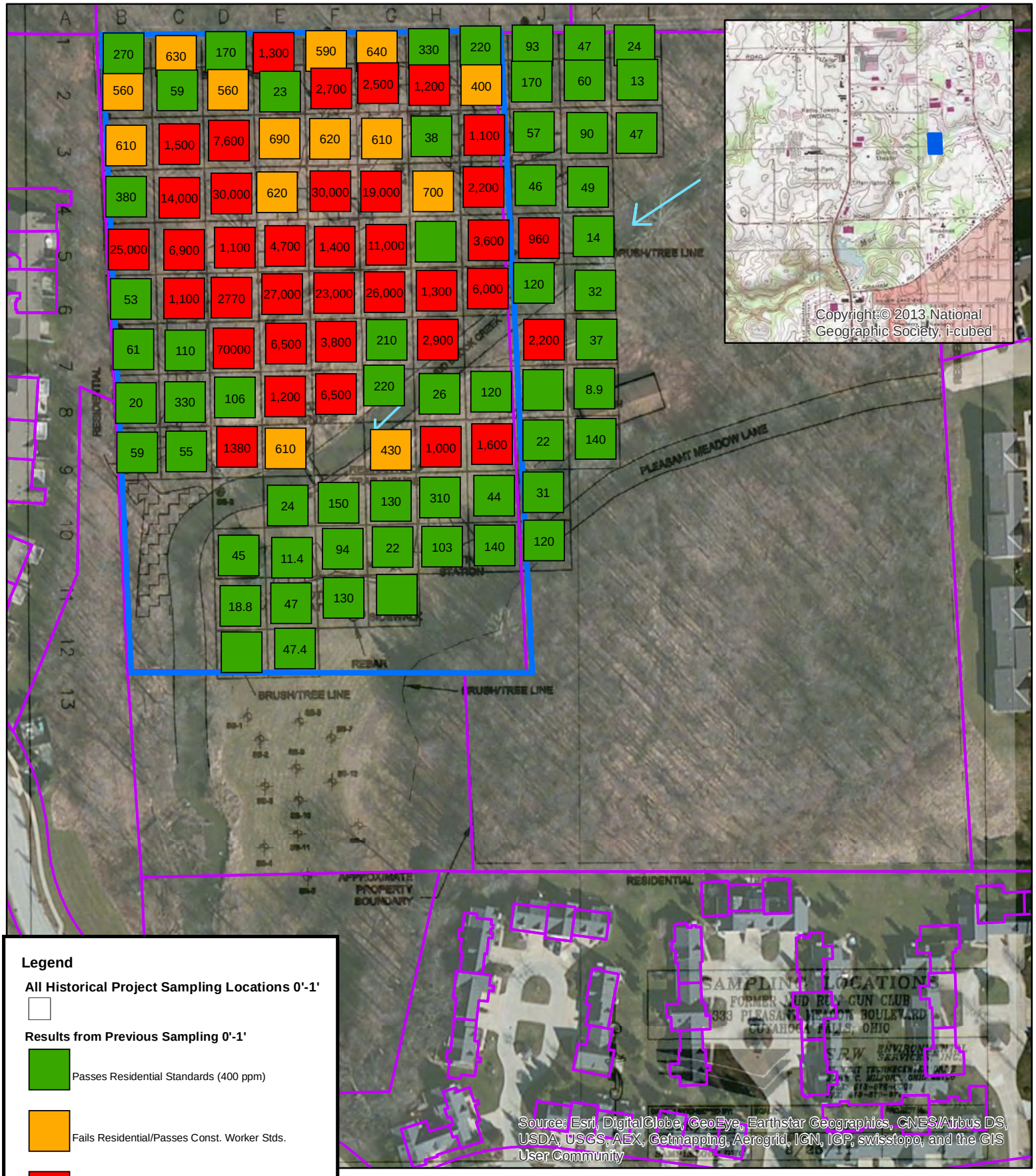


**Legend**

**All Historical Project Sampling Locations 0'-1'**

**Results from Previous Sampling 0'-1'**

- Passes Residential Standards (400 ppm)
- Fails Residential/Passes Const. Worker Stds.
- Fails All Potential Land Use Standards

- Property Boundary
- Creek Flow Direction
- Adjacent Parcels

0 40 80 160 240 320 Feet

N

All data is recorded in ppm (mg/kg)

**FORMER MUD RUN GUN CLUB**
**CUYAHOGA FALLS, OHIO**

**Figure 7**
**All Lead Data Across Site Map**
**Remedial Investigation Report**

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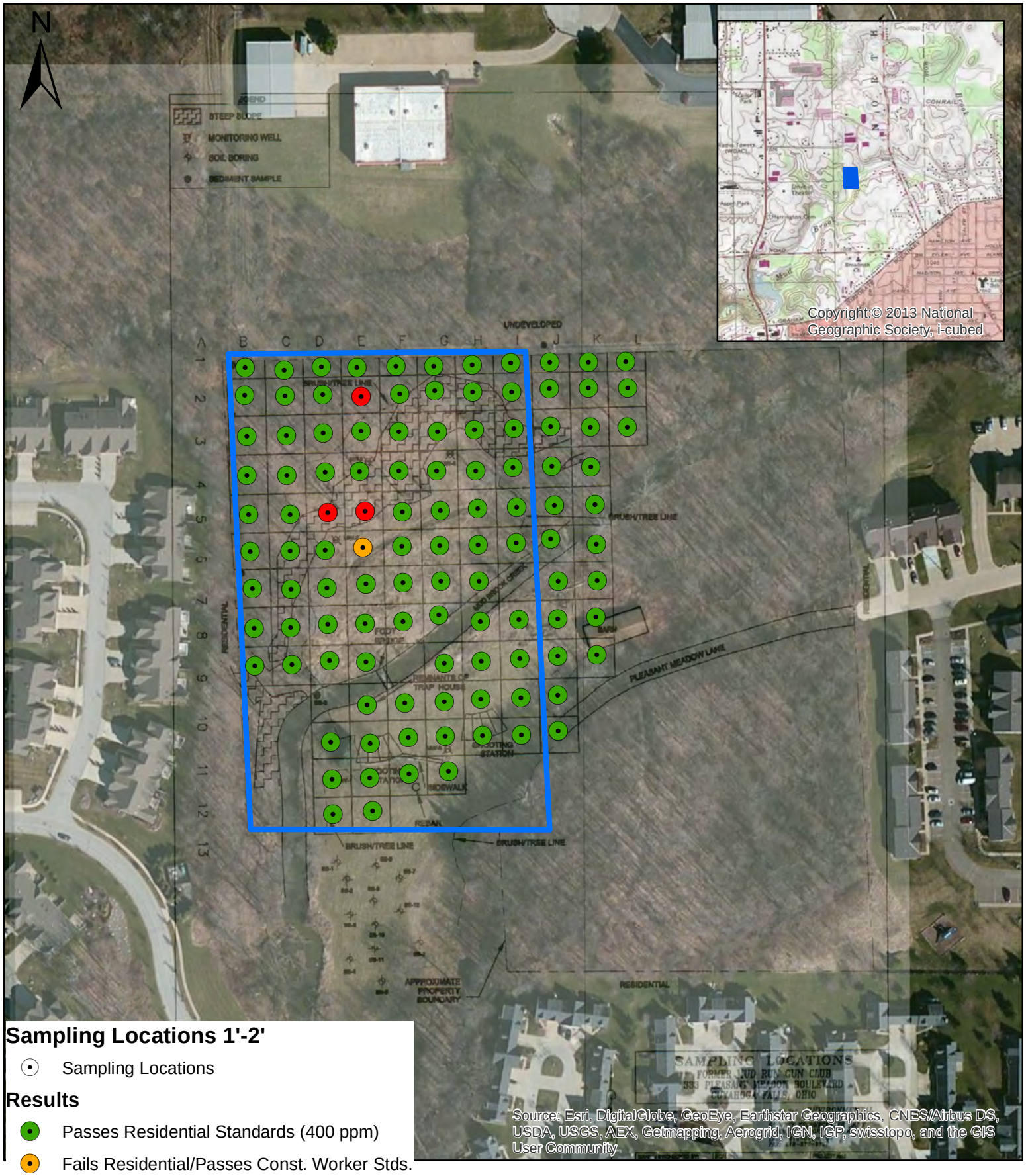


## Sampling Locations 1'-2'

- Sampling Locations

**Results**

- Passes Residential Standards (400 ppm)
- Fails Residential/Passes Const. Worker Stds.
- Fails All Potential Land Use Standards
- Property Boundary
- Adjacent Parcels

0 80 160 240 320 400 Feet

**FORMER MUD RUN GUN CLUB**
**CUYAHOGA FALLS, OHIO**

**Figure 8**
**Historical Lead Data 1'-2' Map**
**Remedial Investigation Report**

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# TABLES

# Table 1-Grid Locations: Summary of Missing Grid Data Soil Sampling
# Sampling Area: Grid Locations: Grid locations to Resolve Data Gap

**PANDEY**
ENVIRONMENTAL, LLC

### Former Mud Run Gun Club: 333 Pleasant Meadow Blvd.; Cuyahoga Falls, Ohio

| Chemical Name | SB-16:0-1' (12/4/15) | SB-17:0-1' (12/4/15) | SB-18:0-1' (12/4/15) | SB-18A:0-1' (12/4/15) | SB-19:0-1' (12/4/15) | SB-20:0-1' (12/4/15) | SB-21:0-1' (12/4/15) | SB-22:0-1' (12/4/15) | SB-23:0-1' (12/4/15) | GDCSS Res. | GDCSS Comm. | GDCSS Const. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Metals & Inorganic Analytes*** | | | | | | | | | | | | |
| Antimony (metallic) | 21.4 | 3150 | 3 | 2 | 12.2 | 1.3 | <1.1 | <1 | 3 | 63 | 1600 | 850 |
| Arsenic, Inorganic | 31.4 | 841 | 11.9 | 13.2 | 24.2 | 15.1 | 13.4 | 11 | 15.7 | 12 | 77 | 690 |
| Lead and Compounds | 2770 | 70000 | 106 | 71.9 | 1380 | 18.8 | 11.4 | 47.4 | 103 | 400 | 800 | 400 |
| Nickel Soluble Salts | 11.9 | 11.1 | 16.5 | 20.4 | 17.7 | 18.2 | 12.5 | 9.4 | 20.7 | 3100 | 74000 | 23000 |
| ***Semi-Volatile Organic Compounds (SVOCs)*** | | | | | | | | | | | | |
| Acenaphthene | <0.031 | 4.9 | 11.3 | 0.56 | <0.34 | <0.0068 | <0.0058 | <0.0059 | <0.006 | 6900 | 90000 | 780000 |
| Acenaphthylene | <0.031 | <1.2 | <0.31 | <0.32 | <0.34 | <0.0068 | <0.0058 | <0.0059 | <0.006 | 6900 | 90000 | 780000 |
| Anthracene | 0.086 | 11.5 | 15.1 | 1.1 | 0.5 | <0.0068 | <0.0058 | <0.0059 | <0.006 | 34000 | 450000 | 1000000 |
| Benz[a]anthracene | 1.9 | 98.3 | 58.9 | 14.3 | 20.8 | 0.016 | 0.015 | 0.03 | 0.026 | 12 | 58 | 1200 |
| Benzo(g,h,i)perylene | 0.91 | 44.9 | 37.3 | 9 | 7.5 | 0.011 | 0.013 | 0.027 | 0.022 | 3400 | 45000 | 390000 |
| Benzo[a]pyrene | 1.6 | 84 | 57.4 | 14 | 15.7 | 0.016 | 0.019 | 0.04 | 0.03 | 1.2 | 5.8 | 120 |
| Benzo[b]fluoranthene | 1 | 54 | 59.6 | 12.1 | 7.1 | 0.018 | 0.02 | 0.041 | 0.025 | 12 | 58 | 1200 |
| Benzo[k]fluoranthene | 0.5 | 26.7 | 39.2 | 6.8 | 1.8 | 0.014 | 0.016 | 0.033 | 0.019 | 120 | 580 | 12000 |
| Chrysene | 3.2 | 151 | 70.9 | 23.7 | 35 | 0.023 | 0.022 | 0.039 | 0.043 | 1200 | 5800 | 120000 |
| Dibenz[a,h]anthracene | 0.55 | 23.8 | 19.6 | 4.3 | 4.3 | <0.0068 | <0.0058 | 0.011 | 0.0093 | 1.2 | 5.8 | 120 |
| Fluoranthene | 0.47 | 53 | 71.5 | 8.2 | 1.6 | 0.028 | 0.018 | 0.033 | 0.028 | 4600 | 60000 | 160000 |
| Fluorene | <0.031 | 3.9 | 8.3 | 0.39 | <0.34 | <0.0068 | <0.0058 | <0.0059 | <0.006 | 4600 | 60000 | 520000 |
| Indeno[1,2,3-cd]pyrene | 0.47 | 31.3 | 34 | 6.5 | 2.8 | 0.0091 | 0.012 | 0.024 | 0.016 | 12 | 58 | 1200 |
| Methylnaphthalene, 2- | <0.031 | <1.2 | 1.9 | 0.79 | <0.34 | <0.0068 | <0.0058 | <0.0059 | <0.006 | 460 | 6000 | 5200 |
| Naphthalene | <0.031 | <1.2 | 2 | <0.32 | <0.34 | <0.0068 | <0.0058 | <0.0059 | 0.03 | 90 | 450 | 560 |
| Phenanthrene | 0.37 | 39.6 | 58.4 | 4.5 | 2.3 | 0.013 | 0.0069 | 0.008 | 0.018 | 34000 | 450000 | 1000000 |
| Pyrene | 1.4 | 90.6 | 79.7 | 10.9 | 12.3 | 0.024 | 0.018 | 0.034 | 0.03 | 3400 | 45000 | 390000 |

All values reported in ppm. Non-detects are shown as less than reporting limit. n/a = Not Analyzed or Not Applicable

GDCSS = Ohio VAP Generic Direct Contact Soil Standard for Residential, Commercial/Industrial and Construction Scenarios

# Table 2-1-Arsenic Background: Summary of Arsenic Background Soil Data
# Sampling Area: Arsenic Background: Arsenic Background Data

PANDEY
ENVIRONMENTAL, LLC

## Former Mud Run Gun Club: 333 Pleasant Meadow Blvd.; Cuyahoga Falls, Ohio

| Chemical Name | SB-1: 0-2' (12/4/15) | SB-2: 0-2' (12/4/15) | SB-3: 0-2' (12/4/15) | SB-4: 0-2' (12/4/15) | SB-5: 0-2' (12/4/15) | SB-6: 0-2' (12/4/15) | SB-7: 0-2' (12/4/15) | SB-8: 0-2' (12/4/15) | Res. | GDCSS Comm. | Const. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Metals & Inorganic Analytes*** | | | | | | | | | | | |
| Arsenic, Inorganic | **20.1** | **21.4** | **25.7** | **19.2** | **13.7** | **26.6** | **16.4** | **15** | 12 | 77 | 690 |

All values reported in ppm. Non-detects are shown as less than reporting limit. n/a = Not Analyzed or Not Applicable

GDCSS = Ohio VAP Generic Direct Contact Soil Standard for Residential, Commercial/Industrial and Construction Scenarios

# Table 2-2-Arsenic Background: Summary of Arsenic Background Soil Data
# Sampling Area: Arsenic Background: Arsenic Background Data

PANDEY
ENVIRONMENTAL, LLC

## Former Mud Run Gun Club: 333 Pleasant Meadow Blvd.; Cuyahoga Falls, Ohio

| Chemical Name | SB-9: 0-2' (12/4/15) | SB-10: 0-2' (12/4/15) | SB-11: 0-2' (12/4/15) | SB-12: 0-2' (12/4/15) | SB-13: 0-2' (12/4/15) | SB-14: 0-2' (12/4/15) | SB-15: 0-2' (12/4/15) | GDCSS Res. | GDCSS Comm. | GDCSS Const. |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Metals & Inorganic Analytes*** | | | | | | | | | | |
| Arsenic, Inorganic | 11.9 | 14.7 | 16.2 | 17.5 | 15.1 | 25.3 | 8.4 | 12 | 77 | 690 |

All values reported in ppm. Non-detects are shown as less than reporting limit. n/a = Not Analyzed or Not Applicable

GDCSS = Ohio VAP Generic Direct Contact Soil Standard for Residential, Commercial/Industrial and Construction Scenarios
*

# Table 3- Summary of Vertical Delineation Soil Sampling Data

PANDEY
ENVIRONMENTAL, LLC

## Former Mud Run Gun Club: 333 Pleasant Meadow Blvd.; Cuyahoga Falls, Ohio

| Chemical Name | SB-24: 2-3' (12/4/15) | SB-25: 2-3' (12/4/15) | SB-26: 2-3' (12/4/15) | SB-27: 2-3' (12/4/15) | GDCSS Res. | GDCSS Comm. | GDCSS Const. |
|---|---|---|---|---|---|---|---|
| ***Metals & Inorganic Analytes*** | | | | | | | |
| Lead and Compounds | 27.7 | 51.4 | 15.3 | 17 | 400 | 800 | 400 |

All values reported in ppm. Non-detects are shown as less than reporting limit. n/a = Not Analyzed or Not Applicable
GDCSS = Ohio VAP Generic Direct Contact Soil Standard for Residential, Commercial/Industrial and Construction Scenarios

| Sample ID | Parameter | Result (ppm) | TCLP Regulatory Limit (ppm) | VAP Residential Land GDCSS (ppm) |
|---|---|---|---|---|
| TCLP-1: 0-0.5 | Arsenic | 2.9 | 5.00 | 12 |
| TCLP-1: 0-0.5 | Lead | 706 | 5.00 | 400 |
| TCLP-1: 0-0.5 | Anthracene | 0.1 | NL | 34,000 |
| TCLP-1: 0-0.5 | Benzo(a)anthracene | 1.6 | NL | 12 |
| TCLP-1: 0-0.5 | Benzo(a)pyrene | 1.4 | NL | 1.2 |
| TCLP-1: 0-0.5 | Benzo(b)fluoranthene | 1 | NL | 12 |
| TCLP-1: 0-0.5 | Benzo(g,h,i)perylene | 0.85 | NL | 3,400 |
| TCLP-1: 0-0.5 | Benzo(k)fluoranthene | 0.44 | NL | 120 |
| TCLP-1: 0-0.5 | Chrysene | 2.8 | NL | 1,200 |
| TCLP-1: 0-0.5 | Dibenz(a,h)anthracene | 0.46 | NL | 1.2 |
| TCLP-1: 0-0.5 | Fluoranthene | 0.67 | NL | 4,600 |
| TCLP-1: 0-0.5 | Indeno(1,2,3-cd)pyrene | 0.48 | NL | 12 |
| TCLP-1: 0-0.5 | Phenanthrene | 0.36 | NL | 34,000 |
| TCLP-1: 0-0.5 | Pyrene | 1.3 | NL | 3,400 |
| TCLP-2: 0-0.5 | Arsenic | 0.54 | 5.00 | 12 |
| TCLP-2: 0-0.5 | Lead | 130 | 5.00 | 400 |
| TCLP-2: 0-0.5 | Anthracene | 0.085 | NL | 34,000 |
| TCLP-2: 0-0.5 | Benzo(a)anthracene | 3.7 | NL | 12 |
| TCLP-2: 0-0.5 | Benzo(a)pyrene | 2.8 | NL | 1.2 |
| TCLP-2: 0-0.5 | Benzo(b)fluoranthene | 1.2 | NL | 12 |
| TCLP-2: 0-0.5 | Benzo(g,h,i)perylene | 1.4 | NL | 3,400 |
| TCLP-2: 0-0.5 | Benzo(k)fluoranthene | 0.51 | NL | 120 |
| TCLP-2: 0-0.5 | Chrysene | 6.2 | NL | 1,200 |
| TCLP-2: 0-0.5 | Dibenz(a,h)anthracene | 0.79 | NL | 1.2 |
| TCLP-2: 0-0.5 | Fluoranthene | 0.33 | NL | 4,600 |
| TCLP-2: 0-0.5 | Indeno(1,2,3-cd)pyrene | 0.53 | NL | 12 |
| TCLP-2: 0-0.5 | Phenanthrene | 0.36 | NL | 34,000 |
| TCLP-2: 0-0.5 | Pyrene | 2.6 | NL | 3,400 |
| TCLP-3: 0-0.5 | Arsenic | 0.38 | 5.00 | 12 |
| TCLP-3: 0-0.5 | Lead | 168 | 5.00 | 400 |
| TCLP-3: 0-0.5 | Anthracene | 0.12 | NL | 34,000 |
| TCLP-3: 0-0.5 | Benzo(a)anthracene | 3.3 | NL | 12 |

| | | | | |
|---|---|---|---|---|
| TCLP-3: 0-0.5 | Benzo(a)pyrene | 3 | NL | 1.2 |
| TCLP-3: 0-0.5 | Benzo(b)fluoranthene | 1.8 | NL | 12 |
| TCLP-3: 0-0.5 | Benzo(g,h,i)perylene | 1.6 | NL | 3,400 |
| TCLP-3: 0-0.5 | Benzo(k)fluoranthene | 0.85 | NL | 120 |
| TCLP-3: 0-0.5 | Chrysene | 5.8 | NL | 1,200 |
| TCLP-3: 0-0.5 | Dibenz(a,h)anthracene | 0.87 | NL | 1.2 |
| TCLP-3: 0-0.5 | Fluoranthene | 0.7 | NL | 4,600 |
| TCLP-3: 0-0.5 | Indeno(1,2,3-cd)pyrene | 0.85 | NL | 12 |
| TCLP-3: 0-0.5 | Naphthalene | 0.063 | NL | 90 |
| TCLP-3: 0-0.5 | Phenanthrene | 0.51 | NL | 34,000 |
| TCLP-3: 0-0.5 | Pyrene | 2.5 | NL | 3,400 |
| TCLP-4: 0-0.5 | Arsenic | 3 | 5.00 | 12 |
| TCLP-4: 0-0.5 | Lead | 0.043 | 5.00 | 400 |
| TCLP-4: 0-0.5 | Anthracene | 0.23 | NL | 34,000 |
| TCLP-4: 0-0.5 | Benzo(a)anthracene | 7.6 | NL | 12 |
| TCLP-4: 0-0.5 | Benzo(a)pyrene | 5.5 | NL | 1.2 |
| TCLP-4: 0-0.5 | Benzo(b)fluoranthene | 2.8 | NL | 12 |
| TCLP-4: 0-0.5 | Benzo(g,h,i)perylene | 2.7 | NL | 3,400 |
| TCLP-4: 0-0.5 | Benzo(k)fluoranthene | 1 | NL | 120 |
| TCLP-4: 0-0.5 | Chrysene | 13.8 | NL | 1,200 |
| TCLP-4: 0-0.5 | Dibenz(a,h)anthracene | 1.5 | NL | 1.2 |
| TCLP-4: 0-0.5 | Fluoranthene | 0.9 | NL | 4,600 |
| TCLP-4: 0-0.5 | Indeno(1,2,3-cd)pyrene | 1.1 | NL | 12 |
| TCLP-4: 0-0.5 | 2-Methylnaphthalene | 0.045 | NL | 460 |
| TCLP-4: 0-0.5 | Phenanthrene | 1.1 | NL | 34,000 |
| TCLP-4: 0-0.5 | Pyrene | 4.9 | NL | 3,400 |
| TCLP-5: 0-0.5 | Arsenic | 0.16 | 5.00 | 12 |
| TCLP-5: 0-0.5 | Lead | 30.6 | 5.00 | 400 |
| TCLP-5: 0-0.5 | Anthracene | 1.2 | NL | 34,000 |
| TCLP-5: 0-0.5 | Benzo(a)anthracene | 62.4 | NL | 12 |
| TCLP-5: 0-0.5 | Benzo(a)pyrene | 45.6 | NL | 1.2 |
| TCLP-5: 0-0.5 | Benzo(b)fluoranthene | 23.2 | NL | 12 |
| TCLP-5: 0-0.5 | Benzo(g,h,i)perylene | 22.7 | NL | 3,400 |
| TCLP-5: 0-0.5 | Benzo(k)fluoranthene | 6 | NL | 120 |

| | | | | |
|---|---|---|---|---|
| TCLP-5: 0-0.5 | Chrysene | 106 | NL | 1,200 |
| TCLP-5: 0-0.5 | Dibenz(a,h)anthracene | 14.7 | NL | 1.2 |
| TCLP-5: 0-0.5 | Fluoranthene | 4.6 | NL | 4,600 |
| TCLP-5: 0-0.5 | Indeno(1,2,3-cd)pyrene | 8.2 | NL | 12 |
| TCLP-5: 0-0.5 | Phenanthrene | 6.2 | NL | 34,000 |
| TCLP-5: 0-0.5 | Pyrene | 39.1 | NL | 3,400 |
| TCLP-6: 0-0.5 | Lead | 0.66 | 5.00 | 400 |
| TCLP-6: 0-0.5 | Acenaphthene | 0.17 | NL | 6,900 |
| TCLP-6: 0-0.5 | Anthracene | 0.35 | NL | 34,000 |
| TCLP-6: 0-0.5 | Benzo(a)anthracene | 6 | NL | 12 |
| TCLP-6: 0-0.5 | Benzo(a)pyrene | 5 | NL | 1.2 |
| TCLP-6: 0-0.5 | Benzo(b)fluoranthene | 3.3 | NL | 12 |
| TCLP-6: 0-0.5 | Benzo(g,h,i)perylene | 2.6 | NL | 3,400 |
| TCLP-6: 0-0.5 | Benzo(k)fluoranthene | 1 | NL | 120 |
| TCLP-6: 0-0.5 | Chrysene | 10.8 | NL | 1,200 |
| TCLP-6: 0-0.5 | Dibenz(a,h)anthracene | 1.8 | NL | 1.2 |
| TCLP-6: 0-0.5 | Fluoranthene | 1.7 | NL | 4,600 |
| TCLP-6: 0-0.5 | Fluorene | 0.11 | NL | 4,600 |
| TCLP-6: 0-0.5 | Indeno(1,2,3-cd)pyrene | 1.5 | NL | 12 |
| TCLP-6: 0-0.5 | 2-Methylnaphthalene | 0.059 | NL | 460 |
| TCLP-6: 0-0.5 | Naphthalene | 0.046 | NL | 90 |
| TCLP-6: 0-0.5 | Phenanthrene | 1.5 | NL | 34,000 |
| TCLP-6: 0-0.5 | Pyrene | 4.7 | NL | 3,400 |

NL - No Limit

*Parameters reported to be Non-Detect or less than the Method Detection Limit (MDL) are not listed

VAP GDCSS - Ohio VAP Generic Direct Contact Single-Chemical Soil Standards

# Table 5-Sediment: Summary of Sediment Sampling Data
# Identified Area Sediment: Sediment Data from Mud Run Brook

**PANDEY**
ENVIRONMENTAL, LLC

### Former Mud Run Gun Club: 333 Pleasant Meadow Blvd.; Cuyahoga Falls, Ohio

| Chemical Name | SD-1:0-1' (12/3/15) | SD-2:0-1' (12/3/15) | SD-3:0-1' (12/3/15) | SD-4:0-1' (12/3/15) | SD-5:0-1' (12/3/15) | SD-6:0-1' (12/3/15)) | SD-7:0-1' (12/3/15) | SD-8:0-1' (12/3/15) | SD-9:0-1' (12/3/15) | SD-10:0-1' (12/3/15) | SD-10A:0-1' (12/3/15) | Sediment Screening Standard | GDCSS Res. | GDCSS Comm. | GDCSS Const. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Metals & Inorganic Analytes*** | | | | | | | | | | | | | | | |
| Antimony (metallic) | <1.1 | <2.1 | <1.2 | <1.3 | 2.6 | <1.1 | <1.1 | <1.2 | <1 | <1 | <1 | 1.3 | 63 | 1600 | 850 |
| Arsenic, Inorganic | 10.4 | 7.6 | 9.5 | 11.7 | 100 | 9.7 | 9 | 6.3 | 10.2 | 11 | 7.2 | 25 | 12 | 77 | 690 |
| Lead and Compounds | 6.4 | 9.8 | 12 | 15.5 | 131 | 19.5 | 15.9 | 30.7 | 17.7 | 24.8 | 15.4 | 47 | 400 | 800 | 400 |
| Nickel Soluble Salts | 8.1 | 8.7 | 14.6 | 13.4 | 36.6 | 11.2 | 11.3 | 10.6 | 10.4 | 9.6 | 7.9 | 33 | 3100 | 74000 | 23000 |
| ***Semi-Volatile Organic Compounds (SVOCs)*** | | | | | | | | | | | | | | | |
| Acenaphthene | <0.029 | <0.029 | <0.0063 | 0.014 | 0.0064 | 0.034 | 0.024 | 0.08 | <0.0059 | <0.028 | <0.09 | 0.00671 | 6900 | 90000 | 780000 |
| Acenaphthylene | <0.029 | 0.043 | 0.01 | 0.014 | 0.0064 | 0.03 | 0.018 | 0.13 | <0.0059 | <0.028 | <0.09 | 0.00587 | 6900 | 90000 | 780000 |
| Anthracene | <0.029 | 0.039 | 0.023 | 0.045 | 0.02 | 0.24 | 0.052 | 0.29 | 0.009 | 0.028 | 0.09 | 0.0572 | 34000 | 450000 | 1000000 |
| Benz[a]anthracene | 0.073 | 0.13 | 0.057 | 0.13 | 0.092 | 7.9 | 0.093 | 0.88 | 0.022 | 0.37 | 4 | 0.108 | 12 | 58 | 1200 |
| Benzo(g,h,i)perylene | 0.053 | 0.11 | 0.037 | 0.085 | 0.063 | 2.4 | 0.06 | 0.51 | 0.016 | 0.19 | 1.6 | 0.17 | 3400 | 45000 | 390000 |
| Benzo[a]pyrene | 0.069 | 0.14 | 0.053 | 0.12 | 0.088 | 4.6 | 0.09 | 0.79 | 0.019 | 0.33 | 3.3 | 0.15 | 1.2 | 5.8 | 120 |
| Benzo[b]fluoranthene | 0.089 | 0.15 | 0.066 | 0.12 | 0.12 | 2.3 | 0.1 | 0.76 | 0.02 | 0.22 | 1.5 | 10.4 | 12 | 58 | 1200 |
| Benzo[k]fluoranthene | 0.075 | 0.15 | 0.043 | 0.13 | 0.075 | 0.74 | 0.064 | 0.78 | 0.019 | 0.11 | 0.51 | 0.24 | 120 | 580 | 12000 |
| Chrysene | 0.11 | 0.17 | 0.064 | 0.15 | 0.11 | 14.6 | 0.098 | 1 | 0.027 | 0.65 | 7.7 | 0.166 | 1200 | 5800 | 120000 |
| Dibenz[a,h]anthracene | <0.029 | 0.051 | 0.018 | 0.045 | 0.029 | 1.5 | 0.03 | 0.27 | 0.0067 | 0.11 | 0.92 | 0.033 | 1.2 | 5.8 | 120 |
| Fluoranthene | 0.17 | 0.39 | 0.15 | 0.3 | 0.26 | 1.5 | 0.2 | 2 | 0.059 | 0.26 | 0.33 | 0.423 | 4600 | 60000 | 160000 |
| Fluorene | <0.029 | <0.029 | 0.0084 | 0.021 | 0.009 | 0.056 | 0.028 | 0.085 | <0.0059 | <0.028 | <0.09 | 0.0774 | 4600 | 60000 | 520000 |
| Indeno[1,2,3-cd]pyrene | 0.047 | 0.1 | 0.035 | 0.08 | 0.059 | 0.75 | 0.056 | 0.49 | 0.013 | 0.11 | 0.55 | 0.2 | 12 | 58 | 1200 |
| Methylnaphthalene, 2- | <0.029 | <0.029 | <0.0063 | 0.008 | <0.006 | 0.045 | 0.016 | 0.032 | <0.0059 | <0.028 | <0.09 | 0.0202 | 460 | 6000 | 5200 |
| Naphthalene | <0.029 | <0.029 | 0.0089 | 0.027 | <0.006 | <0.03 | 0.017 | 0.032 | <0.0059 | <0.028 | <0.09 | 0.176 | 90 | 450 | 560 |
| Phenanthrene | 0.051 | 0.19 | 0.086 | 0.17 | 0.12 | 1.2 | 0.13 | 1.1 | 0.029 | 0.11 | 0.36 | 0.204 | 34000 | 450000 | 1000000 |
| Pyrene | 0.13 | 0.3 | 0.11 | 0.23 | 0.2 | 4.7 | 0.18 | 1.5 | 0.046 | 0.32 | 1.8 | 0.195 | 3400 | 45000 | 390000 |

All values reported in ppm. Non-detects are shown as less than reporting limit. n/a = Not Analyzed or Not Applicable
GDCSS = Ohio VAP Generic Direct Contact Soil Standard for Residential, Commercial/Industrial and Construction Scenarios
Sediment Screening Standard = In accordance with OAC 3745-300-800(I)(2); Standards are from the Ohio Ecological Sediment Reference Values (SRV), MacDonald, Ingersoll and Berger's Document, and EPA Region 5 Screening Levels

# Table 5-Sediment: Summary of Sediment Sampling Data
# Identified Area Sediment: Sediment Data from Mud Run Brook

**PANDEY**
ENVIRONMENTAL, LLC

## Former Mud Run Gun Club: 333 Pleasant Meadow Blvd.; Cuyahoga Falls, Ohio

| Chemical Name | SD-11:0-1' (12/30/15) | SD-12:0-1' (12/30/15) | SD-13:0-1' (12/30/15) | SD-14:0-1' (12/30/15) | Sediment Screening Standard | GDCSS Res. | GDCSS Comm. | GDCSS Const. |
|---|---|---|---|---|---|---|---|---|
| ***Metals & Inorganic Analytes*** | | | | | | | | |
| Antimony (metallic) | n/a | n/a | n/a | n/a | MO | 63 | 1600 | 850 |
| Arsenic, Inorganic | n/a | n/a | n/a | n/a | HP | 12 | 77 | 690 |
| Lead and Compounds | 20.7 | 14.7 | 9 | 6.8 | PT | 400 | 800 | 400 |
| Nickel Soluble Salts | n/a | n/a | n/a | n/a | OO | 3100 | 74000 | 23000 |
| ***Semi-Volatile Organic Compounds (SVOCs)*** | | | | | | | | |
| Acenaphthene | 0.094 | <0.007 | <0.0057 | <0.0076 | 0.00671 | 6900 | 90000 | 780000 |
| Acenaphthylene | <0.032 | <0.007 | <0.0057 | <0.0076 | 0.00587 | 6900 | 90000 | 780000 |
| Anthracene | 0.13 | 0.0076 | 0.0073 | <0.0076 | 0.0572 | 34000 | 450000 | 1000000 |
| Benz[a]anthracene | 0.52 | 0.048 | 0.044 | 0.021 | 0.108 | 12 | 58 | 1200 |
| Benzo(g,h,i)perylene | 0.34 | 0.022 | 0.033 | 0.015 | 0.17 | 3400 | 45000 | 390000 |
| Benzo[a]pyrene | 0.54 | 0.036 | 0.043 | 0.02 | 0.15 | 1.2 | 5.8 | 120 |
| Benzo[b]fluoranthene | 0.46 | 0.031 | 0.047 | 0.02 | 10.4 | 12 | 58 | 1200 |
| Benzo[k]fluoranthene | 0.44 | 0.025 | 0.044 | 0.019 | 0.24 | 120 | 580 | 12000 |
| Chrysene | 0.61 | 0.068 | 0.062 | 0.033 | 0.166 | 1200 | 5800 | 120000 |
| Dibenz[a,h]anthracene | 0.15 | 0.0098 | 0.012 | <0.0076 | 0.033 | 1.2 | 5.8 | 120 |
| Fluoranthene | 0.82 | 0.064 | 0.11 | 0.037 | 0.423 | 4600 | 60000 | 160000 |
| Fluorene | 0.059 | <0.007 | <0.0057 | <0.0076 | 0.0774 | 4600 | 60000 | 520000 |
| Indeno[1,2,3-cd]pyrene | 0.3 | 0.017 | 0.029 | 0.012 | 0.2 | 12 | 58 | 1200 |
| Methylnaphthalene, 2- | <0.032 | <0.007 | <0.0057 | <0.0076 | 0.0202 | 460 | 6000 | 5200 |
| Naphthalene | <0.032 | <0.007 | <0.0057 | <0.0076 | 0.176 | 90 | 450 | 560 |
| Phenanthrene | 0.53 | 0.029 | 0.043 | 0.015 | 0.204 | 34000 | 450000 | 1000000 |
| Pyrene | 0.84 | 0.068 | 0.095 | 0.035 | 0.195 | 3400 | 45000 | 390000 |

All values reported in ppm. Non-detects are shown as less than reporting limit. n/a = Not Analyzed or Not Applicable
GDCSS = Ohio VAP Generic Direct Contact Soil Standard for Residential, Commercial/Industrial and Construction Scenarios
Sediment Screening Standard = In accordance with OAC 3745-300-800(I)(2); Standards are from the Ohio Ecological Sediment Reference Values (SRV), MacDonald, Ingersoll and Berger's Document, and EPA Region 5 Screening Levels

# APPENDIX A

Laboratory Analytical Data, Chains of Custody, And Laboratory Affidavits

**Pace Analytical Services, Inc.**
Not NELAP Accredited
4860 Blazer Parkway
Dublin, OH 43017
(614)486-5421

**Pace Analytical Services, Inc.**
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

December 22, 2015

Mr. Nick Vallera
Pandey Environmental, LLC
4100 Horizons Drive
Suite 205
Columbus, OH 43220

RE: Project: Mud Run Gun Club
Pace Project No.: 50133848 (Revised Report: Added additional qualifiers for "IS" qualified PAH samples)

Dear Mr. Vallera:
Enclosed are the analytical results for sample(s) received by the laboratory on December 05, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kenneth Hunt
kenneth.hunt@pacelabs.com
Project Manager

Enclosures

**REPORT OF LABORATORY ANALYSIS**

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**Pace Analytical Services, Inc.**
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Indianapolis, IN 46268
(317)228-3100

## CERTIFICATIONS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Indiana Certification IDs**
7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 200074
Indiana Certification #: C-49-06
Kansas Certification #:E-10177
Kentucky UST Certification #: 0042
Kentucky WW Certification #:98019
Louisiana Certification #: 04076
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2014-148
Texas Certification #: T104704355-15-9
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-10-00128

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## SAMPLE SUMMARY

Project: Mud Run Gun Club
Pace Project No.: 50133848

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **50133848001** | **SD-1:0-1** | Solid | 12/03/15 15:00 | 12/05/15 09:10 |
| **50133848002** | **SD-2:0-1** | Solid | 12/03/15 14:55 | 12/05/15 09:10 |
| **50133848003** | **SD-3:0-1** | Solid | 12/03/15 14:50 | 12/05/15 09:10 |
| **50133848004** | **SD-4:0-1** | Solid | 12/03/15 14:45 | 12/05/15 09:10 |
| **50133848005** | **SD-5:0-1** | Solid | 12/03/15 14:40 | 12/05/15 09:10 |
| **50133848006** | **SD-6:0-1** | Solid | 12/03/15 14:00 | 12/05/15 09:10 |
| **50133848007** | **SD-7:0-1** | Solid | 12/03/15 13:55 | 12/05/15 09:10 |
| **50133848008** | **SD-8:0-1** | Solid | 12/03/15 13:50 | 12/05/15 09:10 |
| **50133848009** | **SD-9:0-1** | Solid | 12/03/15 13:45 | 12/05/15 09:10 |
| **50133848010** | **SD-10:0-1** | Solid | 12/03/15 13:40 | 12/05/15 09:10 |
| **50133848011** | **SD-10A:0-1** | Solid | 12/03/15 13:40 | 12/05/15 09:10 |
| **50133848012** | **TCLP-1:0-0.5** | Solid | 12/03/15 15:55 | 12/05/15 09:10 |
| **50133848013** | **TCLP-2:0-0.5** | Solid | 12/03/15 16:00 | 12/05/15 09:10 |
| **50133848014** | **TCLP-3:0-0.5** | Solid | 12/03/15 16:05 | 12/05/15 09:10 |
| **50133848015** | **TCLP-4:0-0.5** | Solid | 12/03/15 16:10 | 12/05/15 09:10 |
| **50133848016** | **TCLP-5:0-0.5** | Solid | 12/03/15 16:15 | 12/05/15 09:10 |
| **50133848017** | **TCLP-6:0-0.5** | Solid | 12/03/15 16:30 | 12/05/15 09:10 |
| **50133848018** | **EB-1** | Water | 12/04/15 11:55 | 12/05/15 09:10 |
| **50133848019** | **EB-2** | Water | 12/04/15 12:00 | 12/05/15 09:10 |
| **50133848020** | **SB-1:0-2** | Solid | 12/04/15 09:35 | 12/05/15 09:10 |
| **50133848021** | **SB-2:0-2** | Solid | 12/04/15 09:40 | 12/05/15 09:10 |
| **50133848022** | **SB-3:0-2** | Solid | 12/04/15 09:45 | 12/05/15 09:10 |
| **50133848023** | **SB-4:0-2** | Solid | 12/04/15 10:00 | 12/05/15 09:10 |
| **50133848024** | **SB-5:0-2** | Solid | 12/04/15 09:55 | 12/05/15 09:10 |
| **50133848025** | **SB-6:0-2** | Solid | 12/04/15 09:50 | 12/05/15 09:10 |
| **50133848026** | **SB-7:0-2** | Solid | 12/04/15 10:05 | 12/05/15 09:10 |
| **50133848027** | **SB-8:0-2** | Solid | 12/04/15 10:10 | 12/05/15 09:10 |
| **50133848028** | **SB-9:0-2** | Solid | 12/04/15 10:15 | 12/05/15 09:10 |
| **50133848029** | **SB-10:0-2** | Solid | 12/04/15 10:30 | 12/05/15 09:10 |
| **50133848030** | **SB-11:0-2** | Solid | 12/04/15 10:25 | 12/05/15 09:10 |
| **50133848031** | **SB-12:0-2** | Solid | 12/04/15 10:20 | 12/05/15 09:10 |
| **50133848032** | **SB-13:0-2** | Solid | 12/04/15 10:33 | 12/05/15 09:10 |
| **50133848033** | **SB-14:0-2** | Solid | 12/04/15 10:36 | 12/05/15 09:10 |
| **50133848034** | **SB-15:0-2** | Solid | 12/04/15 10:39 | 12/05/15 09:10 |
| **50133848035** | **SB-16:0-1** | Solid | 12/04/15 11:15 | 12/05/15 09:10 |
| **50133848036** | **SB-17:0-1** | Solid | 12/04/15 11:20 | 12/05/15 09:10 |
| **50133848037** | **SB-18:0-1** | Solid | 12/04/15 11:25 | 12/05/15 09:10 |

## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Mud Run Gun Club
Pace Project No.: 50133848

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **50133848038** | **SB-18A:0-1** | Solid | 12/04/15 11:27 | 12/05/15 09:10 |
| **50133848039** | **SB-19:0-1** | Solid | 12/04/15 11:35 | 12/05/15 09:10 |
| **50133848040** | **SB-20:0-1** | Solid | 12/04/15 10:45 | 12/05/15 09:10 |
| **50133848041** | **SB-21:0-1** | Solid | 12/04/15 10:48 | 12/05/15 09:10 |
| **50133848042** | **SB-22:0-1** | Solid | 12/04/15 10:42 | 12/05/15 09:10 |
| **50133848043** | **SB-23:0-1** | Solid | 12/04/15 10:51 | 12/05/15 09:10 |
| **50133848044** | **SB-24:2-3** | Solid | 12/04/15 10:57 | 12/05/15 09:10 |
| **50133848045** | **SB-25:2-3** | Solid | 12/04/15 10:54 | 12/05/15 09:10 |
| **50133848046** | **SB-26:2-3** | Solid | 12/04/15 11:05 | 12/05/15 09:10 |
| **50133848047** | **SB-27:2-3** | Solid | 12/04/15 11:10 | 12/05/15 09:10 |

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## SAMPLE ANALYTE COUNT

Project: Mud Run Gun Club
Pace Project No.: 50133848

| Lab ID | Sample ID | Method | Analysts | Analytes Reported |
|---|---|---|---|---|
| **50133848001** | **SD-1:0-1** | EPA 6010 | JPK | 4 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848002** | **SD-2:0-1** | EPA 6010 | JPK | 4 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848003** | **SD-3:0-1** | EPA 6010 | JPK | 4 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848004** | **SD-4:0-1** | EPA 6010 | JPK | 4 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848005** | **SD-5:0-1** | EPA 6010 | JPK | 4 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848006** | **SD-6:0-1** | EPA 6010 | JPK | 4 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848007** | **SD-7:0-1** | EPA 6010 | JPK | 4 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848008** | **SD-8:0-1** | EPA 6010 | JPK | 4 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848009** | **SD-9:0-1** | EPA 6010 | JPK | 4 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848010** | **SD-10:0-1** | EPA 6010 | JPK | 4 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848011** | **SD-10A:0-1** | EPA 6010 | JPK | 4 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848012** | **TCLP-1:0-0.5** | EPA 6010 | JPK | 7 |
| | | EPA 7470 | ILP | 1 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |

## REPORT OF LABORATORY ANALYSIS

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Indianapolis, IN 46268
(317)228-3100

## SAMPLE ANALYTE COUNT

Project: Mud Run Gun Club
Pace Project No.: 50133848

| Lab ID | Sample ID | Method | Analysts | Analytes Reported |
|---|---|---|---|---|
| **50133848013** | **TCLP-2:0-0.5** | EPA 6010 | JPK | 7 |
| | | EPA 7470 | ILP | 1 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848014** | **TCLP-3:0-0.5** | EPA 6010 | JPK | 7 |
| | | EPA 7470 | ILP | 1 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848015** | **TCLP-4:0-0.5** | EPA 6010 | JPK | 7 |
| | | EPA 7470 | ILP | 1 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848016** | **TCLP-5:0-0.5** | EPA 6010 | JPK | 7 |
| | | EPA 7470 | ILP | 1 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848017** | **TCLP-6:0-0.5** | EPA 6010 | JPK | 7 |
| | | EPA 7470 | ILP | 1 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848018** | **EB-1** | EPA 6010 | MJC | 4 |
| | | EPA 8270 by SIM LVE | TBP | 19 |
| **50133848019** | **EB-2** | EPA 6010 | MJC | 4 |
| | | EPA 8270 by SIM LVE | TBP | 19 |
| **50133848020** | **SB-1:0-2** | EPA 6010 | JPK | 1 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848021** | **SB-2:0-2** | EPA 6010 | JPK | 1 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848022** | **SB-3:0-2** | EPA 6010 | JPK | 1 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848023** | **SB-4:0-2** | EPA 6010 | JPK | 1 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848024** | **SB-5:0-2** | EPA 6010 | JPK | 1 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848025** | **SB-6:0-2** | EPA 6010 | JPK | 1 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848026** | **SB-7:0-2** | EPA 6010 | JPK | 1 |

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## SAMPLE ANALYTE COUNT

Project: Mud Run Gun Club
Pace Project No.: 50133848

| Lab ID | Sample ID | Method | Analysts | Analytes Reported |
|---|---|---|---|---|
| | | ASTM D2974-87 | MLS | 1 |
| **50133848027** | **SB-8:0-2** | EPA 6010 | JPK | 1 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848028** | **SB-9:0-2** | EPA 6010 | JPK | 1 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848029** | **SB-10:0-2** | EPA 6010 | JPK | 1 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848030** | **SB-11:0-2** | EPA 6010 | JPK | 1 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848031** | **SB-12:0-2** | EPA 6010 | JPK | 1 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848032** | **SB-13:0-2** | EPA 6010 | JPK | 1 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848033** | **SB-14:0-2** | EPA 6010 | JPK | 1 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848034** | **SB-15:0-2** | EPA 6010 | JPK | 1 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848035** | **SB-16:0-1** | EPA 6010 | JPK | 4 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848036** | **SB-17:0-1** | EPA 6010 | JPK | 4 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848037** | **SB-18:0-1** | EPA 6010 | JPK | 4 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848038** | **SB-18A:0-1** | EPA 6010 | JPK | 4 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848039** | **SB-19:0-1** | EPA 6010 | JPK | 4 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848040** | **SB-20:0-1** | EPA 6010 | JPK | 4 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848041** | **SB-21:0-1** | EPA 6010 | JPK | 4 |
| | | EPA 8270 by SIM | JCM | 19 |

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## SAMPLE ANALYTE COUNT

Project: Mud Run Gun Club
Pace Project No.: 50133848

| Lab ID | Sample ID | Method | Analysts | Analytes Reported |
|---|---|---|---|---|
| | | ASTM D2974-87 | MLS | 1 |
| **50133848042** | **SB-22:0-1** | EPA 6010 | JPK | 4 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848043** | **SB-23:0-1** | EPA 6010 | JPK | 4 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848044** | **SB-24:2-3** | EPA 6010 | JPK | 1 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848045** | **SB-25:2-3** | EPA 6010 | JPK | 1 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848046** | **SB-26:2-3** | EPA 6010 | JPK | 1 |
| | | ASTM D2974-87 | MLS | 1 |
| **50133848047** | **SB-27:2-3** | EPA 6010 | JPK | 1 |
| | | ASTM D2974-87 | MLS | 1 |

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## SUMMARY OF DETECTION

Project: Mud Run Gun Club
Pace Project No.: 50133848

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **50133848001** | **SD-1:0-1** | | | | | |
| EPA 6010 | Arsenic | 10.4 | mg/kg | 1.1 | 12/08/15 01:10 | |
| EPA 6010 | Lead | 6.4 | mg/kg | 1.1 | 12/08/15 01:10 | |
| EPA 6010 | Nickel | 8.1 | mg/kg | 1.1 | 12/08/15 01:10 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 0.073 | mg/kg | 0.029 | 12/10/15 13:05 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 0.069 | mg/kg | 0.029 | 12/10/15 13:05 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 0.089 | mg/kg | 0.029 | 12/10/15 13:05 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 0.053 | mg/kg | 0.029 | 12/10/15 13:05 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.075 | mg/kg | 0.029 | 12/10/15 13:05 | |
| EPA 8270 by SIM | Chrysene | 0.11 | mg/kg | 0.029 | 12/10/15 13:05 | |
| EPA 8270 by SIM | Fluoranthene | 0.17 | mg/kg | 0.029 | 12/10/15 13:05 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.047 | mg/kg | 0.029 | 12/10/15 13:05 | |
| EPA 8270 by SIM | Phenanthrene | 0.051 | mg/kg | 0.029 | 12/10/15 13:05 | |
| EPA 8270 by SIM | Pyrene | 0.13 | mg/kg | 0.029 | 12/10/15 13:05 | |
| ASTM D2974-87 | Percent Moisture | 15.5 | % | 0.10 | 12/07/15 08:41 | |
| **50133848002** | **SD-2:0-1** | | | | | |
| EPA 6010 | Arsenic | 7.6 | mg/kg | 2.1 | 12/08/15 04:37 | |
| EPA 6010 | Lead | 9.8 | mg/kg | 2.1 | 12/08/15 04:37 | |
| EPA 6010 | Nickel | 8.7 | mg/kg | 2.1 | 12/08/15 04:37 | |
| EPA 8270 by SIM | Acenaphthylene | 0.043 | mg/kg | 0.029 | 12/09/15 08:51 | |
| EPA 8270 by SIM | Anthracene | 0.039 | mg/kg | 0.029 | 12/09/15 08:51 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 0.13 | mg/kg | 0.029 | 12/09/15 08:51 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 0.14 | mg/kg | 0.029 | 12/09/15 08:51 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 0.15 | mg/kg | 0.029 | 12/09/15 08:51 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 0.11 | mg/kg | 0.029 | 12/09/15 08:51 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.15 | mg/kg | 0.029 | 12/09/15 08:51 | |
| EPA 8270 by SIM | Chrysene | 0.17 | mg/kg | 0.029 | 12/09/15 08:51 | |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 0.051 | mg/kg | 0.029 | 12/09/15 08:51 | |
| EPA 8270 by SIM | Fluoranthene | 0.39 | mg/kg | 0.029 | 12/09/15 08:51 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.10 | mg/kg | 0.029 | 12/09/15 08:51 | |
| EPA 8270 by SIM | Phenanthrene | 0.19 | mg/kg | 0.029 | 12/09/15 08:51 | |
| EPA 8270 by SIM | Pyrene | 0.30 | mg/kg | 0.029 | 12/09/15 08:51 | |
| ASTM D2974-87 | Percent Moisture | 13.8 | % | 0.10 | 12/07/15 08:41 | |
| **50133848003** | **SD-3:0-1** | | | | | |
| EPA 6010 | Arsenic | 9.5 | mg/kg | 1.2 | 12/08/15 01:22 | |
| EPA 6010 | Lead | 12.0 | mg/kg | 1.2 | 12/08/15 01:22 | |
| EPA 6010 | Nickel | 14.6 | mg/kg | 1.2 | 12/08/15 01:22 | |
| EPA 8270 by SIM | Acenaphthylene | 0.010 | mg/kg | 0.0063 | 12/09/15 09:09 | |
| EPA 8270 by SIM | Anthracene | 0.023 | mg/kg | 0.0063 | 12/09/15 09:09 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 0.057 | mg/kg | 0.0063 | 12/09/15 09:09 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 0.053 | mg/kg | 0.0063 | 12/09/15 09:09 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 0.066 | mg/kg | 0.0063 | 12/09/15 09:09 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 0.037 | mg/kg | 0.0063 | 12/09/15 09:09 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.043 | mg/kg | 0.0063 | 12/09/15 09:09 | |
| EPA 8270 by SIM | Chrysene | 0.064 | mg/kg | 0.0063 | 12/09/15 09:09 | |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 0.018 | mg/kg | 0.0063 | 12/09/15 09:09 | |
| EPA 8270 by SIM | Fluoranthene | 0.15 | mg/kg | 0.0063 | 12/09/15 09:09 | |

## REPORT OF LABORATORY ANALYSIS

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## SUMMARY OF DETECTION

Project: Mud Run Gun Club
Pace Project No.: 50133848

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **50133848003** | **SD-3:0-1** | | | | | |
| EPA 8270 by SIM | Fluorene | 0.0084 | mg/kg | 0.0063 | 12/09/15 09:09 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.035 | mg/kg | 0.0063 | 12/09/15 09:09 | |
| EPA 8270 by SIM | Naphthalene | 0.0089 | mg/kg | 0.0063 | 12/09/15 09:09 | |
| EPA 8270 by SIM | Phenanthrene | 0.086 | mg/kg | 0.0063 | 12/09/15 09:09 | |
| EPA 8270 by SIM | Pyrene | 0.11 | mg/kg | 0.0063 | 12/09/15 09:09 | |
| ASTM D2974-87 | Percent Moisture | 20.8 | % | 0.10 | 12/07/15 08:41 | |
| **50133848004** | **SD-4:0-1** | | | | | |
| EPA 6010 | Arsenic | 11.7 | mg/kg | 1.3 | 12/08/15 01:24 | |
| EPA 6010 | Lead | 15.5 | mg/kg | 1.3 | 12/08/15 01:24 | |
| EPA 6010 | Nickel | 13.4 | mg/kg | 1.3 | 12/08/15 01:24 | |
| EPA 8270 by SIM | Acenaphthene | 0.014 | mg/kg | 0.0069 | 12/09/15 09:26 | |
| EPA 8270 by SIM | Acenaphthylene | 0.014 | mg/kg | 0.0069 | 12/09/15 09:26 | |
| EPA 8270 by SIM | Anthracene | 0.045 | mg/kg | 0.0069 | 12/09/15 09:26 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 0.13 | mg/kg | 0.0069 | 12/09/15 09:26 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 0.12 | mg/kg | 0.0069 | 12/09/15 09:26 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 0.12 | mg/kg | 0.0069 | 12/09/15 09:26 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 0.085 | mg/kg | 0.0069 | 12/09/15 09:26 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.13 | mg/kg | 0.0069 | 12/09/15 09:26 | |
| EPA 8270 by SIM | Chrysene | 0.15 | mg/kg | 0.0069 | 12/09/15 09:26 | |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 0.045 | mg/kg | 0.0069 | 12/09/15 09:26 | |
| EPA 8270 by SIM | Fluoranthene | 0.30 | mg/kg | 0.0069 | 12/09/15 09:26 | |
| EPA 8270 by SIM | Fluorene | 0.021 | mg/kg | 0.0069 | 12/09/15 09:26 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.080 | mg/kg | 0.0069 | 12/09/15 09:26 | |
| EPA 8270 by SIM | 2-Methylnaphthalene | 0.0080 | mg/kg | 0.0069 | 12/09/15 09:26 | |
| EPA 8270 by SIM | Naphthalene | 0.027 | mg/kg | 0.0069 | 12/09/15 09:26 | |
| EPA 8270 by SIM | Phenanthrene | 0.17 | mg/kg | 0.0069 | 12/09/15 09:26 | |
| EPA 8270 by SIM | Pyrene | 0.23 | mg/kg | 0.0069 | 12/09/15 09:26 | |
| ASTM D2974-87 | Percent Moisture | 27.2 | % | 0.10 | 12/07/15 08:41 | |
| **50133848005** | **SD-5:0-1** | | | | | |
| EPA 6010 | Antimony | 2.6 | mg/kg | 1.1 | 12/08/15 01:26 | |
| EPA 6010 | Arsenic | 100 | mg/kg | 1.1 | 12/08/15 01:26 | |
| EPA 6010 | Lead | 131 | mg/kg | 1.1 | 12/08/15 01:26 | |
| EPA 6010 | Nickel | 36.6 | mg/kg | 1.1 | 12/08/15 01:26 | |
| EPA 8270 by SIM | Acenaphthene | 0.0064 | mg/kg | 0.0060 | 12/09/15 09:44 | |
| EPA 8270 by SIM | Acenaphthylene | 0.0064 | mg/kg | 0.0060 | 12/09/15 09:44 | |
| EPA 8270 by SIM | Anthracene | 0.020 | mg/kg | 0.0060 | 12/09/15 09:44 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 0.092 | mg/kg | 0.0060 | 12/09/15 09:44 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 0.088 | mg/kg | 0.0060 | 12/09/15 09:44 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 0.12 | mg/kg | 0.0060 | 12/09/15 09:44 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 0.063 | mg/kg | 0.0060 | 12/09/15 09:44 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.075 | mg/kg | 0.0060 | 12/09/15 09:44 | |
| EPA 8270 by SIM | Chrysene | 0.11 | mg/kg | 0.0060 | 12/09/15 09:44 | |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 0.029 | mg/kg | 0.0060 | 12/09/15 09:44 | |
| EPA 8270 by SIM | Fluoranthene | 0.26 | mg/kg | 0.0060 | 12/09/15 09:44 | |
| EPA 8270 by SIM | Fluorene | 0.0090 | mg/kg | 0.0060 | 12/09/15 09:44 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.059 | mg/kg | 0.0060 | 12/09/15 09:44 | |

## REPORT OF LABORATORY ANALYSIS

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## SUMMARY OF DETECTION

Project: Mud Run Gun Club
Pace Project No.: 50133848

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **50133848005** | **SD-5:0-1** | | | | | |
| EPA 8270 by SIM | Phenanthrene | 0.12 | mg/kg | 0.0060 | 12/09/15 09:44 | |
| EPA 8270 by SIM | Pyrene | 0.20 | mg/kg | 0.0060 | 12/09/15 09:44 | |
| ASTM D2974-87 | Percent Moisture | 17.2 | % | 0.10 | 12/07/15 08:42 | |
| **50133848006** | **SD-6:0-1** | | | | | |
| EPA 6010 | Arsenic | 9.7 | mg/kg | 1.1 | 12/08/15 01:28 | |
| EPA 6010 | Lead | 19.5 | mg/kg | 1.1 | 12/08/15 01:28 | |
| EPA 6010 | Nickel | 11.2 | mg/kg | 1.1 | 12/08/15 01:28 | |
| EPA 8270 by SIM | Acenaphthene | 0.034 | mg/kg | 0.030 | 12/09/15 10:02 | |
| EPA 8270 by SIM | Acenaphthylene | 0.030 | mg/kg | 0.030 | 12/09/15 10:02 | |
| EPA 8270 by SIM | Anthracene | 0.24 | mg/kg | 0.030 | 12/09/15 10:02 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 7.9 | mg/kg | 0.030 | 12/09/15 10:02 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 4.6 | mg/kg | 0.030 | 12/09/15 10:02 | C0,IS |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 2.3 | mg/kg | 0.030 | 12/09/15 10:02 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 2.4 | mg/kg | 0.030 | 12/09/15 10:02 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.74 | mg/kg | 0.030 | 12/09/15 10:02 | |
| EPA 8270 by SIM | Chrysene | 14.6 | mg/kg | 0.15 | 12/10/15 12:30 | |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 1.5 | mg/kg | 0.030 | 12/09/15 10:02 | |
| EPA 8270 by SIM | Fluoranthene | 1.5 | mg/kg | 0.030 | 12/09/15 10:02 | |
| EPA 8270 by SIM | Fluorene | 0.056 | mg/kg | 0.030 | 12/09/15 10:02 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.75 | mg/kg | 0.030 | 12/09/15 10:02 | |
| EPA 8270 by SIM | 2-Methylnaphthalene | 0.045 | mg/kg | 0.030 | 12/09/15 10:02 | |
| EPA 8270 by SIM | Phenanthrene | 1.2 | mg/kg | 0.030 | 12/09/15 10:02 | |
| EPA 8270 by SIM | Pyrene | 4.7 | mg/kg | 0.030 | 12/09/15 10:02 | |
| ASTM D2974-87 | Percent Moisture | 16.5 | % | 0.10 | 12/07/15 08:42 | |
| **50133848007** | **SD-7:0-1** | | | | | |
| EPA 6010 | Arsenic | 9.0 | mg/kg | 1.1 | 12/08/15 01:37 | |
| EPA 6010 | Lead | 15.9 | mg/kg | 1.1 | 12/08/15 01:37 | |
| EPA 6010 | Nickel | 11.3 | mg/kg | 1.1 | 12/08/15 01:37 | |
| EPA 8270 by SIM | Acenaphthene | 0.024 | mg/kg | 0.0064 | 12/09/15 10:19 | |
| EPA 8270 by SIM | Acenaphthylene | 0.018 | mg/kg | 0.0064 | 12/09/15 10:19 | |
| EPA 8270 by SIM | Anthracene | 0.052 | mg/kg | 0.0064 | 12/09/15 10:19 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 0.093 | mg/kg | 0.0064 | 12/09/15 10:19 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 0.090 | mg/kg | 0.0064 | 12/09/15 10:19 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 0.10 | mg/kg | 0.0064 | 12/09/15 10:19 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 0.060 | mg/kg | 0.0064 | 12/09/15 10:19 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.064 | mg/kg | 0.0064 | 12/09/15 10:19 | |
| EPA 8270 by SIM | Chrysene | 0.098 | mg/kg | 0.0064 | 12/09/15 10:19 | |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 0.030 | mg/kg | 0.0064 | 12/09/15 10:19 | |
| EPA 8270 by SIM | Fluoranthene | 0.20 | mg/kg | 0.0064 | 12/09/15 10:19 | |
| EPA 8270 by SIM | Fluorene | 0.028 | mg/kg | 0.0064 | 12/09/15 10:19 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.056 | mg/kg | 0.0064 | 12/09/15 10:19 | |
| EPA 8270 by SIM | 2-Methylnaphthalene | 0.016 | mg/kg | 0.0064 | 12/09/15 10:19 | |
| EPA 8270 by SIM | Naphthalene | 0.017 | mg/kg | 0.0064 | 12/09/15 10:19 | C0,IS |
| EPA 8270 by SIM | Phenanthrene | 0.13 | mg/kg | 0.0064 | 12/09/15 10:19 | |
| EPA 8270 by SIM | Pyrene | 0.18 | mg/kg | 0.0064 | 12/09/15 10:19 | |
| ASTM D2974-87 | Percent Moisture | 22.2 | % | 0.10 | 12/07/15 08:42 | |

## REPORT OF LABORATORY ANALYSIS

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Indianapolis, IN 46268
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## SUMMARY OF DETECTION

Project: Mud Run Gun Club
Pace Project No.: 50133848

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **50133848008** | **SD-8:0-1** | | | | | |
| EPA 6010 | Arsenic | 6.3 | mg/kg | 1.2 | 12/08/15 01:39 | |
| EPA 6010 | Lead | 30.7 | mg/kg | 1.2 | 12/08/15 01:39 | |
| EPA 6010 | Nickel | 10.6 | mg/kg | 1.2 | 12/08/15 01:39 | |
| EPA 8270 by SIM | Acenaphthene | 0.080 | mg/kg | 0.031 | 12/09/15 10:37 | |
| EPA 8270 by SIM | Acenaphthylene | 0.13 | mg/kg | 0.031 | 12/09/15 10:37 | |
| EPA 8270 by SIM | Anthracene | 0.29 | mg/kg | 0.031 | 12/09/15 10:37 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 0.88 | mg/kg | 0.031 | 12/09/15 10:37 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 0.79 | mg/kg | 0.031 | 12/09/15 10:37 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 0.76 | mg/kg | 0.031 | 12/09/15 10:37 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 0.51 | mg/kg | 0.031 | 12/09/15 10:37 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.78 | mg/kg | 0.031 | 12/09/15 10:37 | |
| EPA 8270 by SIM | Chrysene | 1.0 | mg/kg | 0.031 | 12/09/15 10:37 | |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 0.27 | mg/kg | 0.031 | 12/09/15 10:37 | |
| EPA 8270 by SIM | Fluoranthene | 2.0 | mg/kg | 0.031 | 12/09/15 10:37 | |
| EPA 8270 by SIM | Fluorene | 0.085 | mg/kg | 0.031 | 12/09/15 10:37 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.49 | mg/kg | 0.031 | 12/09/15 10:37 | |
| EPA 8270 by SIM | 2-Methylnaphthalene | 0.032 | mg/kg | 0.031 | 12/09/15 10:37 | |
| EPA 8270 by SIM | Naphthalene | 0.032 | mg/kg | 0.031 | 12/09/15 10:37 | 1d |
| EPA 8270 by SIM | Phenanthrene | 1.1 | mg/kg | 0.031 | 12/09/15 10:37 | |
| EPA 8270 by SIM | Pyrene | 1.5 | mg/kg | 0.031 | 12/09/15 10:37 | |
| ASTM D2974-87 | Percent Moisture | 21.0 | % | 0.10 | 12/07/15 08:42 | |
| **50133848009** | **SD-9:0-1** | | | | | |
| EPA 6010 | Arsenic | 10.2 | mg/kg | 1.0 | 12/08/15 01:41 | |
| EPA 6010 | Lead | 17.7 | mg/kg | 1.0 | 12/08/15 01:41 | |
| EPA 6010 | Nickel | 10.4 | mg/kg | 1.0 | 12/08/15 01:41 | |
| EPA 8270 by SIM | Anthracene | 0.0090 | mg/kg | 0.0059 | 12/09/15 10:54 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 0.022 | mg/kg | 0.0059 | 12/09/15 10:54 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 0.019 | mg/kg | 0.0059 | 12/09/15 10:54 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 0.020 | mg/kg | 0.0059 | 12/09/15 10:54 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 0.016 | mg/kg | 0.0059 | 12/09/15 10:54 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.019 | mg/kg | 0.0059 | 12/09/15 10:54 | |
| EPA 8270 by SIM | Chrysene | 0.027 | mg/kg | 0.0059 | 12/09/15 10:54 | |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 0.0067 | mg/kg | 0.0059 | 12/09/15 10:54 | |
| EPA 8270 by SIM | Fluoranthene | 0.059 | mg/kg | 0.0059 | 12/09/15 10:54 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.013 | mg/kg | 0.0059 | 12/09/15 10:54 | |
| EPA 8270 by SIM | Phenanthrene | 0.029 | mg/kg | 0.0059 | 12/09/15 10:54 | |
| EPA 8270 by SIM | Pyrene | 0.046 | mg/kg | 0.0059 | 12/09/15 10:54 | |
| ASTM D2974-87 | Percent Moisture | 15.7 | % | 0.10 | 12/07/15 08:42 | |
| **50133848010** | **SD-10:0-1** | | | | | |
| EPA 6010 | Arsenic | 11.0 | mg/kg | 1.0 | 12/08/15 01:43 | |
| EPA 6010 | Lead | 24.8 | mg/kg | 1.0 | 12/08/15 01:43 | |
| EPA 6010 | Nickel | 9.6 | mg/kg | 1.0 | 12/08/15 01:43 | |
| EPA 8270 by SIM | Anthracene | 0.028 | mg/kg | 0.028 | 12/09/15 11:11 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 0.37 | mg/kg | 0.028 | 12/09/15 11:11 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 0.33 | mg/kg | 0.028 | 12/09/15 11:11 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 0.22 | mg/kg | 0.028 | 12/09/15 11:11 | |

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## SUMMARY OF DETECTION

Project: Mud Run Gun Club
Pace Project No.: 50133848

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **50133848010** | **SD-10:0-1** | | | | | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 0.19 | mg/kg | 0.028 | 12/09/15 11:11 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.11 | mg/kg | 0.028 | 12/09/15 11:11 | |
| EPA 8270 by SIM | Chrysene | 0.65 | mg/kg | 0.028 | 12/09/15 11:11 | |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 0.11 | mg/kg | 0.028 | 12/09/15 11:11 | |
| EPA 8270 by SIM | Fluoranthene | 0.26 | mg/kg | 0.028 | 12/09/15 11:11 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.11 | mg/kg | 0.028 | 12/09/15 11:11 | |
| EPA 8270 by SIM | Phenanthrene | 0.11 | mg/kg | 0.028 | 12/09/15 11:11 | |
| EPA 8270 by SIM | Pyrene | 0.32 | mg/kg | 0.028 | 12/09/15 11:11 | |
| ASTM D2974-87 | Percent Moisture | 11.5 | % | 0.10 | 12/07/15 08:42 | |
| **50133848011** | **SD-10A:0-1** | | | | | |
| EPA 6010 | Arsenic | 7.2 | mg/kg | 1.0 | 12/08/15 01:45 | |
| EPA 6010 | Lead | 15.4 | mg/kg | 1.0 | 12/08/15 01:45 | |
| EPA 6010 | Nickel | 7.9 | mg/kg | 1.0 | 12/08/15 01:45 | |
| EPA 8270 by SIM | Anthracene | 0.090 | mg/kg | 0.090 | 12/10/15 19:08 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 4.0 | mg/kg | 0.090 | 12/10/15 19:08 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 3.3 | mg/kg | 0.090 | 12/10/15 19:08 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 1.5 | mg/kg | 0.090 | 12/10/15 19:08 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 1.6 | mg/kg | 0.090 | 12/10/15 19:08 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.51 | mg/kg | 0.090 | 12/10/15 19:08 | |
| EPA 8270 by SIM | Chrysene | 7.7 | mg/kg | 0.090 | 12/10/15 19:08 | |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 0.92 | mg/kg | 0.090 | 12/10/15 19:08 | |
| EPA 8270 by SIM | Fluoranthene | 0.33 | mg/kg | 0.090 | 12/10/15 19:08 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.55 | mg/kg | 0.090 | 12/10/15 19:08 | |
| EPA 8270 by SIM | Phenanthrene | 0.36 | mg/kg | 0.090 | 12/10/15 19:08 | |
| EPA 8270 by SIM | Pyrene | 1.8 | mg/kg | 0.090 | 12/10/15 19:08 | |
| ASTM D2974-87 | Percent Moisture | 17.1 | % | 0.10 | 12/07/15 08:42 | |
| **50133848012** | **TCLP-1:0-0.5** | | | | | |
| EPA 6010 | Arsenic | 2.9 | mg/L | 0.10 | 12/09/15 02:28 | |
| EPA 6010 | Lead | 706 | mg/L | 0.10 | 12/09/15 02:28 | |
| EPA 8270 by SIM | Anthracene | 0.10 | mg/kg | 0.032 | 12/11/15 17:07 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 1.6 | mg/kg | 0.032 | 12/11/15 17:07 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 1.4 | mg/kg | 0.032 | 12/11/15 17:07 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 1.0 | mg/kg | 0.032 | 12/11/15 17:07 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 0.85 | mg/kg | 0.032 | 12/11/15 17:07 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.44 | mg/kg | 0.032 | 12/11/15 17:07 | |
| EPA 8270 by SIM | Chrysene | 2.8 | mg/kg | 0.032 | 12/11/15 17:07 | |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 0.46 | mg/kg | 0.032 | 12/11/15 17:07 | |
| EPA 8270 by SIM | Fluoranthene | 0.67 | mg/kg | 0.032 | 12/11/15 17:07 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.48 | mg/kg | 0.032 | 12/11/15 17:07 | |
| EPA 8270 by SIM | Phenanthrene | 0.36 | mg/kg | 0.032 | 12/11/15 17:07 | |
| EPA 8270 by SIM | Pyrene | 1.3 | mg/kg | 0.032 | 12/11/15 17:07 | |
| ASTM D2974-87 | Percent Moisture | 22.2 | % | 0.10 | 12/07/15 08:42 | |
| **50133848013** | **TCLP-2:0-0.5** | | | | | |
| EPA 6010 | Arsenic | 0.54 | mg/L | 0.10 | 12/09/15 02:36 | |
| EPA 6010 | Lead | 130 | mg/L | 0.10 | 12/09/15 02:36 | |
| EPA 8270 by SIM | Anthracene | 0.085 | mg/kg | 0.030 | 12/11/15 17:25 | |

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## SUMMARY OF DETECTION

Project: Mud Run Gun Club
Pace Project No.: 50133848

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **50133848013** | **TCLP-2:0-0.5** | | | | | |
| EPA 8270 by SIM | Benzo(a)anthracene | 3.7 | mg/kg | 0.030 | 12/11/15 17:25 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 2.8 | mg/kg | 0.030 | 12/11/15 17:25 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 1.2 | mg/kg | 0.030 | 12/11/15 17:25 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 1.4 | mg/kg | 0.030 | 12/11/15 17:25 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.51 | mg/kg | 0.030 | 12/11/15 17:25 | |
| EPA 8270 by SIM | Chrysene | 6.2 | mg/kg | 0.030 | 12/11/15 17:25 | C0,IS |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 0.79 | mg/kg | 0.030 | 12/11/15 17:25 | |
| EPA 8270 by SIM | Fluoranthene | 0.33 | mg/kg | 0.030 | 12/11/15 17:25 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.53 | mg/kg | 0.030 | 12/11/15 17:25 | |
| EPA 8270 by SIM | Phenanthrene | 0.36 | mg/kg | 0.030 | 12/11/15 17:25 | |
| EPA 8270 by SIM | Pyrene | 2.6 | mg/kg | 0.030 | 12/11/15 17:25 | |
| ASTM D2974-87 | Percent Moisture | 17.5 | % | 0.10 | 12/07/15 08:42 | |
| **50133848014** | **TCLP-3:0-0.5** | | | | | |
| EPA 6010 | Arsenic | 0.38 | mg/L | 0.10 | 12/09/15 02:38 | |
| EPA 6010 | Lead | 168 | mg/L | 0.10 | 12/09/15 02:38 | |
| EPA 8270 by SIM | Anthracene | 0.12 | mg/kg | 0.032 | 12/11/15 17:42 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 3.3 | mg/kg | 0.032 | 12/11/15 17:42 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 3.0 | mg/kg | 0.032 | 12/11/15 17:42 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 1.8 | mg/kg | 0.032 | 12/11/15 17:42 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 1.6 | mg/kg | 0.032 | 12/11/15 17:42 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.85 | mg/kg | 0.032 | 12/11/15 17:42 | |
| EPA 8270 by SIM | Chrysene | 5.8 | mg/kg | 0.032 | 12/11/15 17:42 | C0,IS |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 0.87 | mg/kg | 0.032 | 12/11/15 17:42 | |
| EPA 8270 by SIM | Fluoranthene | 0.70 | mg/kg | 0.032 | 12/11/15 17:42 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.85 | mg/kg | 0.032 | 12/11/15 17:42 | |
| EPA 8270 by SIM | Naphthalene | 0.063 | mg/kg | 0.032 | 12/11/15 17:42 | 1d |
| EPA 8270 by SIM | Phenanthrene | 0.51 | mg/kg | 0.032 | 12/11/15 17:42 | |
| EPA 8270 by SIM | Pyrene | 2.5 | mg/kg | 0.032 | 12/11/15 17:42 | |
| ASTM D2974-87 | Percent Moisture | 21.8 | % | 0.10 | 12/07/15 08:43 | |
| **50133848015** | **TCLP-4:0-0.5** | | | | | |
| EPA 6010 | Lead | 3.0 | mg/L | 0.10 | 12/09/15 02:40 | |
| EPA 8270 by SIM | Acenaphthene | 0.043 | mg/kg | 0.042 | 12/11/15 18:00 | |
| EPA 8270 by SIM | Anthracene | 0.23 | mg/kg | 0.042 | 12/11/15 18:00 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 7.6 | mg/kg | 0.042 | 12/11/15 18:00 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 5.5 | mg/kg | 0.042 | 12/11/15 18:00 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 2.8 | mg/kg | 0.042 | 12/11/15 18:00 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 2.7 | mg/kg | 0.042 | 12/11/15 18:00 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 1.0 | mg/kg | 0.042 | 12/11/15 18:00 | |
| EPA 8270 by SIM | Chrysene | 13.8 | mg/kg | 0.042 | 12/11/15 18:00 | C0,IS |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 1.5 | mg/kg | 0.042 | 12/11/15 18:00 | |
| EPA 8270 by SIM | Fluoranthene | 0.90 | mg/kg | 0.042 | 12/11/15 18:00 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 1.1 | mg/kg | 0.042 | 12/11/15 18:00 | |
| EPA 8270 by SIM | 2-Methylnaphthalene | 0.045 | mg/kg | 0.042 | 12/11/15 18:00 | |
| EPA 8270 by SIM | Phenanthrene | 1.1 | mg/kg | 0.042 | 12/11/15 18:00 | |
| EPA 8270 by SIM | Pyrene | 4.9 | mg/kg | 0.042 | 12/11/15 18:00 | |
| ASTM D2974-87 | Percent Moisture | 40.7 | % | 0.10 | 12/07/15 08:43 | |

## REPORT OF LABORATORY ANALYSIS

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## SUMMARY OF DETECTION

Project: Mud Run Gun Club
Pace Project No.: 50133848

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **50133848016** | **TCLP-5:0-0.5** | | | | | |
| EPA 6010 | Arsenic | 0.16 | mg/L | 0.10 | 12/09/15 02:43 | |
| EPA 6010 | Lead | 30.6 | mg/L | 0.10 | 12/09/15 02:43 | |
| EPA 8270 by SIM | Anthracene | 1.2 | mg/kg | 1.1 | 12/11/15 18:17 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 62.4 | mg/kg | 1.1 | 12/11/15 18:17 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 45.6 | mg/kg | 1.1 | 12/11/15 18:17 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 23.2 | mg/kg | 1.1 | 12/11/15 18:17 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 22.7 | mg/kg | 1.1 | 12/11/15 18:17 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 6.0 | mg/kg | 1.1 | 12/11/15 18:17 | |
| EPA 8270 by SIM | Chrysene | 106 | mg/kg | 1.1 | 12/11/15 18:17 | C0,IS |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 14.7 | mg/kg | 1.1 | 12/11/15 18:17 | |
| EPA 8270 by SIM | Fluoranthene | 4.6 | mg/kg | 1.1 | 12/11/15 18:17 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 8.2 | mg/kg | 1.1 | 12/11/15 18:17 | |
| EPA 8270 by SIM | Phenanthrene | 6.2 | mg/kg | 1.1 | 12/11/15 18:17 | |
| EPA 8270 by SIM | Pyrene | 39.1 | mg/kg | 1.1 | 12/11/15 18:17 | |
| ASTM D2974-87 | Percent Moisture | 12.0 | % | 0.10 | 12/07/15 08:43 | |
| **50133848017** | **TCLP-6:0-0.5** | | | | | |
| EPA 6010 | Lead | 0.66 | mg/L | 0.10 | 12/09/15 02:45 | |
| EPA 8270 by SIM | Acenaphthene | 0.17 | mg/kg | 0.033 | 12/11/15 18:35 | |
| EPA 8270 by SIM | Anthracene | 0.35 | mg/kg | 0.033 | 12/11/15 18:35 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 6.0 | mg/kg | 0.033 | 12/11/15 18:35 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 5.0 | mg/kg | 0.033 | 12/11/15 18:35 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 3.3 | mg/kg | 0.033 | 12/11/15 18:35 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 2.6 | mg/kg | 0.033 | 12/11/15 18:35 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 1.0 | mg/kg | 0.033 | 12/11/15 18:35 | |
| EPA 8270 by SIM | Chrysene | 10.8 | mg/kg | 0.033 | 12/11/15 18:35 | |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 1.8 | mg/kg | 0.033 | 12/11/15 18:35 | |
| EPA 8270 by SIM | Fluoranthene | 1.7 | mg/kg | 0.033 | 12/11/15 18:35 | |
| EPA 8270 by SIM | Fluorene | 0.11 | mg/kg | 0.033 | 12/11/15 18:35 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 1.5 | mg/kg | 0.033 | 12/11/15 18:35 | |
| EPA 8270 by SIM | 2-Methylnaphthalene | 0.059 | mg/kg | 0.033 | 12/11/15 18:35 | |
| EPA 8270 by SIM | Naphthalene | 0.046 | mg/kg | 0.033 | 12/11/15 18:35 | 1d,C0,IS |
| EPA 8270 by SIM | Phenanthrene | 1.5 | mg/kg | 0.033 | 12/11/15 18:35 | |
| EPA 8270 by SIM | Pyrene | 4.7 | mg/kg | 0.033 | 12/11/15 18:35 | |
| ASTM D2974-87 | Percent Moisture | 23.1 | % | 0.10 | 12/07/15 08:43 | |
| **50133848020** | **SB-1:0-2** | | | | | |
| EPA 6010 | Arsenic | 20.1 | mg/kg | 1.1 | 12/08/15 01:47 | |
| ASTM D2974-87 | Percent Moisture | 19.3 | % | 0.10 | 12/07/15 08:43 | |
| **50133848021** | **SB-2:0-2** | | | | | |
| EPA 6010 | Arsenic | 21.4 | mg/kg | 1.1 | 12/08/15 01:49 | |
| ASTM D2974-87 | Percent Moisture | 19.5 | % | 0.10 | 12/07/15 08:43 | |
| **50133848022** | **SB-3:0-2** | | | | | |
| EPA 6010 | Arsenic | 25.7 | mg/kg | 0.96 | 12/08/15 01:51 | |
| ASTM D2974-87 | Percent Moisture | 7.2 | % | 0.10 | 12/07/15 08:43 | |

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## SUMMARY OF DETECTION

Project: Mud Run Gun Club
Pace Project No.: 50133848

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **50133848023** | **SB-4:0-2** | | | | | |
| EPA 6010 | Arsenic | 19.2 | mg/kg | 1.1 | 12/08/15 01:53 | |
| ASTM D2974-87 | Percent Moisture | 20.5 | % | 0.10 | 12/07/15 09:01 | |
| **50133848024** | **SB-5:0-2** | | | | | |
| EPA 6010 | Arsenic | 13.7 | mg/kg | 1.2 | 12/08/15 01:55 | |
| ASTM D2974-87 | Percent Moisture | 21.9 | % | 0.10 | 12/07/15 09:01 | |
| **50133848025** | **SB-6:0-2** | | | | | |
| EPA 6010 | Arsenic | 26.6 | mg/kg | 1.0 | 12/08/15 02:02 | |
| ASTM D2974-87 | Percent Moisture | 14.5 | % | 0.10 | 12/07/15 09:01 | |
| **50133848026** | **SB-7:0-2** | | | | | |
| EPA 6010 | Arsenic | 16.4 | mg/kg | 1.2 | 12/08/15 02:04 | |
| ASTM D2974-87 | Percent Moisture | 18.0 | % | 0.10 | 12/07/15 09:01 | |
| **50133848027** | **SB-8:0-2** | | | | | |
| EPA 6010 | Arsenic | 15.0 | mg/kg | 1.2 | 12/08/15 02:06 | |
| ASTM D2974-87 | Percent Moisture | 22.2 | % | 0.10 | 12/07/15 09:01 | |
| **50133848028** | **SB-9:0-2** | | | | | |
| EPA 6010 | Arsenic | 11.9 | mg/kg | 1.5 | 12/08/15 02:09 | |
| ASTM D2974-87 | Percent Moisture | 40.1 | % | 0.10 | 12/07/15 09:01 | |
| **50133848029** | **SB-10:0-2** | | | | | |
| EPA 6010 | Arsenic | 14.7 | mg/kg | 1.2 | 12/09/15 23:36 | |
| ASTM D2974-87 | Percent Moisture | 20.3 | % | 0.10 | 12/07/15 09:02 | |
| **50133848030** | **SB-11:0-2** | | | | | |
| EPA 6010 | Arsenic | 16.2 | mg/kg | 1.4 | 12/09/15 23:54 | |
| ASTM D2974-87 | Percent Moisture | 36.0 | % | 0.10 | 12/07/15 09:02 | |
| **50133848031** | **SB-12:0-2** | | | | | |
| EPA 6010 | Arsenic | 17.5 | mg/kg | 1.2 | 12/09/15 23:56 | |
| ASTM D2974-87 | Percent Moisture | 16.2 | % | 0.10 | 12/07/15 09:02 | |
| **50133848032** | **SB-13:0-2** | | | | | |
| EPA 6010 | Arsenic | 15.1 | mg/kg | 1.1 | 12/09/15 23:58 | |
| ASTM D2974-87 | Percent Moisture | 16.1 | % | 0.10 | 12/07/15 09:02 | |
| **50133848033** | **SB-14:0-2** | | | | | |
| EPA 6010 | Arsenic | 25.3 | mg/kg | 1.2 | 12/10/15 00:00 | |
| ASTM D2974-87 | Percent Moisture | 22.5 | % | 0.10 | 12/07/15 09:02 | |
| **50133848034** | **SB-15:0-2** | | | | | |
| EPA 6010 | Arsenic | 8.4 | mg/kg | 1.1 | 12/10/15 00:03 | |
| ASTM D2974-87 | Percent Moisture | 15.2 | % | 0.10 | 12/07/15 09:02 | |
| **50133848035** | **SB-16:0-1** | | | | | |
| EPA 6010 | Antimony | 21.4 | mg/kg | 1.1 | 12/10/15 00:05 | |
| EPA 6010 | Arsenic | 31.4 | mg/kg | 1.1 | 12/10/15 00:05 | |
| EPA 6010 | Lead | 2770 | mg/kg | 1.1 | 12/10/15 00:05 | |
| EPA 6010 | Nickel | 11.9 | mg/kg | 1.1 | 12/10/15 00:05 | |

## REPORT OF LABORATORY ANALYSIS

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## SUMMARY OF DETECTION

Project: Mud Run Gun Club
Pace Project No.: 50133848

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **50133848035** | **SB-16:0-1** | | | | | |
| EPA 8270 by SIM | Anthracene | 0.086 | mg/kg | 0.031 | 12/11/15 18:52 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 1.9 | mg/kg | 0.031 | 12/11/15 18:52 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 1.6 | mg/kg | 0.031 | 12/11/15 18:52 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 1.0 | mg/kg | 0.031 | 12/11/15 18:52 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 0.91 | mg/kg | 0.031 | 12/11/15 18:52 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.50 | mg/kg | 0.031 | 12/11/15 18:52 | |
| EPA 8270 by SIM | Chrysene | 3.2 | mg/kg | 0.031 | 12/11/15 18:52 | C0,IS |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 0.55 | mg/kg | 0.031 | 12/11/15 18:52 | |
| EPA 8270 by SIM | Fluoranthene | 0.47 | mg/kg | 0.031 | 12/11/15 18:52 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.47 | mg/kg | 0.031 | 12/11/15 18:52 | |
| EPA 8270 by SIM | Phenanthrene | 0.37 | mg/kg | 0.031 | 12/11/15 18:52 | |
| EPA 8270 by SIM | Pyrene | 1.4 | mg/kg | 0.031 | 12/11/15 18:52 | |
| ASTM D2974-87 | Percent Moisture | 19.9 | % | 0.10 | 12/07/15 09:02 | |
| **50133848036** | **SB-17:0-1** | | | | | |
| EPA 6010 | Antimony | 3150 | mg/kg | 22.0 | 12/10/15 00:30 | |
| EPA 6010 | Arsenic | 841 | mg/kg | 1.1 | 12/10/15 00:07 | |
| EPA 6010 | Lead | 70000 | mg/kg | 22.0 | 12/10/15 00:30 | |
| EPA 6010 | Nickel | 11.1 | mg/kg | 1.1 | 12/10/15 00:07 | |
| EPA 8270 by SIM | Acenaphthene | 4.9 | mg/kg | 1.2 | 12/11/15 19:09 | |
| EPA 8270 by SIM | Anthracene | 11.5 | mg/kg | 1.2 | 12/11/15 19:09 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 98.3 | mg/kg | 1.2 | 12/11/15 19:09 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 84.0 | mg/kg | 1.2 | 12/11/15 19:09 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 54.0 | mg/kg | 1.2 | 12/11/15 19:09 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 44.9 | mg/kg | 1.2 | 12/11/15 19:09 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 26.7 | mg/kg | 1.2 | 12/11/15 19:09 | |
| EPA 8270 by SIM | Chrysene | 151 | mg/kg | 1.2 | 12/11/15 19:09 | C0,IS |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 23.8 | mg/kg | 1.2 | 12/11/15 19:09 | |
| EPA 8270 by SIM | Fluoranthene | 53.0 | mg/kg | 1.2 | 12/11/15 19:09 | |
| EPA 8270 by SIM | Fluorene | 3.9 | mg/kg | 1.2 | 12/11/15 19:09 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 31.3 | mg/kg | 1.2 | 12/11/15 19:09 | |
| EPA 8270 by SIM | Phenanthrene | 39.6 | mg/kg | 1.2 | 12/11/15 19:09 | |
| EPA 8270 by SIM | Pyrene | 90.6 | mg/kg | 1.2 | 12/11/15 19:09 | |
| ASTM D2974-87 | Percent Moisture | 16.5 | % | 0.10 | 12/07/15 09:02 | |
| **50133848037** | **SB-18:0-1** | | | | | |
| EPA 6010 | Antimony | 3.0 | mg/kg | 1.1 | 12/10/15 00:32 | |
| EPA 6010 | Arsenic | 11.9 | mg/kg | 1.1 | 12/10/15 00:32 | |
| EPA 6010 | Lead | 106 | mg/kg | 1.1 | 12/10/15 00:32 | |
| EPA 6010 | Nickel | 16.5 | mg/kg | 1.1 | 12/10/15 00:32 | |
| EPA 8270 by SIM | Acenaphthene | 11.3 | mg/kg | 0.31 | 12/11/15 19:27 | |
| EPA 8270 by SIM | Anthracene | 15.1 | mg/kg | 0.31 | 12/11/15 19:27 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 58.9 | mg/kg | 0.31 | 12/11/15 19:27 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 57.4 | mg/kg | 0.31 | 12/11/15 19:27 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 59.6 | mg/kg | 0.31 | 12/11/15 19:27 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 37.3 | mg/kg | 0.31 | 12/11/15 19:27 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 39.2 | mg/kg | 0.31 | 12/11/15 19:27 | |
| EPA 8270 by SIM | Chrysene | 70.9 | mg/kg | 0.31 | 12/11/15 19:27 | C0,IS |

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## SUMMARY OF DETECTION

Project: Mud Run Gun Club
Pace Project No.: 50133848

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **50133848037** | **SB-18:0-1** | | | | | |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 19.6 | mg/kg | 0.31 | 12/11/15 19:27 | |
| EPA 8270 by SIM | Fluoranthene | 71.5 | mg/kg | 0.31 | 12/11/15 19:27 | |
| EPA 8270 by SIM | Fluorene | 8.3 | mg/kg | 0.31 | 12/11/15 19:27 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 34.0 | mg/kg | 0.31 | 12/11/15 19:27 | |
| EPA 8270 by SIM | 2-Methylnaphthalene | 1.9 | mg/kg | 0.31 | 12/11/15 19:27 | |
| EPA 8270 by SIM | Naphthalene | 2.0 | mg/kg | 0.31 | 12/11/15 19:27 | D3 |
| EPA 8270 by SIM | Phenanthrene | 58.4 | mg/kg | 0.31 | 12/11/15 19:27 | |
| EPA 8270 by SIM | Pyrene | 79.7 | mg/kg | 0.31 | 12/11/15 19:27 | |
| ASTM D2974-87 | Percent Moisture | 19.5 | % | 0.10 | 12/07/15 09:03 | |
| **50133848038** | **SB-18A:0-1** | | | | | |
| EPA 6010 | Antimony | 2.0 | mg/kg | 1.2 | 12/10/15 00:35 | |
| EPA 6010 | Arsenic | 13.2 | mg/kg | 1.2 | 12/10/15 00:35 | |
| EPA 6010 | Lead | 71.9 | mg/kg | 1.2 | 12/10/15 00:35 | |
| EPA 6010 | Nickel | 20.4 | mg/kg | 1.2 | 12/10/15 00:35 | |
| EPA 8270 by SIM | Acenaphthene | 0.56 | mg/kg | 0.32 | 12/11/15 19:44 | |
| EPA 8270 by SIM | Anthracene | 1.1 | mg/kg | 0.32 | 12/11/15 19:44 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 14.3 | mg/kg | 0.32 | 12/11/15 19:44 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 14.0 | mg/kg | 0.32 | 12/11/15 19:44 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 12.1 | mg/kg | 0.32 | 12/11/15 19:44 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 9.0 | mg/kg | 0.32 | 12/11/15 19:44 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 6.8 | mg/kg | 0.32 | 12/11/15 19:44 | |
| EPA 8270 by SIM | Chrysene | 23.7 | mg/kg | 0.32 | 12/11/15 19:44 | C0,IS |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 4.3 | mg/kg | 0.32 | 12/11/15 19:44 | |
| EPA 8270 by SIM | Fluoranthene | 8.2 | mg/kg | 0.32 | 12/11/15 19:44 | |
| EPA 8270 by SIM | Fluorene | 0.39 | mg/kg | 0.32 | 12/11/15 19:44 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 6.5 | mg/kg | 0.32 | 12/11/15 19:44 | |
| EPA 8270 by SIM | 2-Methylnaphthalene | 0.79 | mg/kg | 0.32 | 12/11/15 19:44 | |
| EPA 8270 by SIM | Phenanthrene | 4.5 | mg/kg | 0.32 | 12/11/15 19:44 | |
| EPA 8270 by SIM | Pyrene | 10.9 | mg/kg | 0.32 | 12/11/15 19:44 | |
| ASTM D2974-87 | Percent Moisture | 22.4 | % | 0.10 | 12/07/15 09:03 | |
| **50133848039** | **SB-19:0-1** | | | | | |
| EPA 6010 | Antimony | 12.2 | mg/kg | 1.2 | 12/10/15 00:37 | |
| EPA 6010 | Arsenic | 24.2 | mg/kg | 1.2 | 12/10/15 00:37 | |
| EPA 6010 | Lead | 1380 | mg/kg | 1.2 | 12/10/15 00:37 | |
| EPA 6010 | Nickel | 17.7 | mg/kg | 1.2 | 12/10/15 00:37 | |
| EPA 8270 by SIM | Anthracene | 0.50 | mg/kg | 0.34 | 12/11/15 20:02 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 20.8 | mg/kg | 0.34 | 12/11/15 20:02 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 15.7 | mg/kg | 0.34 | 12/11/15 20:02 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 7.1 | mg/kg | 0.34 | 12/11/15 20:02 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 7.5 | mg/kg | 0.34 | 12/11/15 20:02 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 1.8 | mg/kg | 0.34 | 12/11/15 20:02 | |
| EPA 8270 by SIM | Chrysene | 35.0 | mg/kg | 0.34 | 12/11/15 20:02 | C0,IS |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 4.3 | mg/kg | 0.34 | 12/11/15 20:02 | |
| EPA 8270 by SIM | Fluoranthene | 1.6 | mg/kg | 0.34 | 12/11/15 20:02 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 2.8 | mg/kg | 0.34 | 12/11/15 20:02 | |
| EPA 8270 by SIM | Phenanthrene | 2.3 | mg/kg | 0.34 | 12/11/15 20:02 | |

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## SUMMARY OF DETECTION

Project: Mud Run Gun Club
Pace Project No.: 50133848

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **50133848039** | **SB-19:0-1** | | | | | |
| EPA 8270 by SIM | Pyrene | 12.3 | mg/kg | 0.34 | 12/11/15 20:02 | |
| ASTM D2974-87 | Percent Moisture | 26.2 | % | 0.10 | 12/07/15 09:03 | |
| **50133848040** | **SB-20:0-1** | | | | | |
| EPA 6010 | Antimony | 1.3 | mg/kg | 1.3 | 12/10/15 00:39 | |
| EPA 6010 | Arsenic | 15.1 | mg/kg | 1.3 | 12/10/15 00:39 | |
| EPA 6010 | Lead | 18.8 | mg/kg | 1.3 | 12/10/15 00:39 | |
| EPA 6010 | Nickel | 18.2 | mg/kg | 1.3 | 12/10/15 00:39 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 0.016 | mg/kg | 0.0068 | 12/11/15 20:19 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 0.016 | mg/kg | 0.0068 | 12/11/15 20:19 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 0.018 | mg/kg | 0.0068 | 12/11/15 20:19 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 0.011 | mg/kg | 0.0068 | 12/11/15 20:19 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.014 | mg/kg | 0.0068 | 12/11/15 20:19 | |
| EPA 8270 by SIM | Chrysene | 0.023 | mg/kg | 0.0068 | 12/11/15 20:19 | |
| EPA 8270 by SIM | Fluoranthene | 0.028 | mg/kg | 0.0068 | 12/11/15 20:19 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.0091 | mg/kg | 0.0068 | 12/11/15 20:19 | |
| EPA 8270 by SIM | Phenanthrene | 0.013 | mg/kg | 0.0068 | 12/11/15 20:19 | |
| EPA 8270 by SIM | Pyrene | 0.024 | mg/kg | 0.0068 | 12/11/15 20:19 | |
| ASTM D2974-87 | Percent Moisture | 27.4 | % | 0.10 | 12/07/15 09:03 | |
| **50133848041** | **SB-21:0-1** | | | | | |
| EPA 6010 | Arsenic | 13.4 | mg/kg | 1.1 | 12/10/15 00:42 | |
| EPA 6010 | Lead | 11.4 | mg/kg | 1.1 | 12/10/15 00:42 | |
| EPA 6010 | Nickel | 12.5 | mg/kg | 1.1 | 12/10/15 00:42 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 0.015 | mg/kg | 0.0058 | 12/11/15 20:36 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 0.019 | mg/kg | 0.0058 | 12/11/15 20:36 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 0.020 | mg/kg | 0.0058 | 12/11/15 20:36 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 0.013 | mg/kg | 0.0058 | 12/11/15 20:36 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.016 | mg/kg | 0.0058 | 12/11/15 20:36 | |
| EPA 8270 by SIM | Chrysene | 0.022 | mg/kg | 0.0058 | 12/11/15 20:36 | |
| EPA 8270 by SIM | Fluoranthene | 0.018 | mg/kg | 0.0058 | 12/11/15 20:36 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.012 | mg/kg | 0.0058 | 12/11/15 20:36 | |
| EPA 8270 by SIM | Phenanthrene | 0.0069 | mg/kg | 0.0058 | 12/11/15 20:36 | |
| EPA 8270 by SIM | Pyrene | 0.018 | mg/kg | 0.0058 | 12/11/15 20:36 | |
| ASTM D2974-87 | Percent Moisture | 15.0 | % | 0.10 | 12/07/15 09:03 | |
| **50133848042** | **SB-22:0-1** | | | | | |
| EPA 6010 | Arsenic | 11.0 | mg/kg | 1.0 | 12/10/15 00:44 | |
| EPA 6010 | Lead | 47.4 | mg/kg | 1.0 | 12/10/15 00:44 | |
| EPA 6010 | Nickel | 9.4 | mg/kg | 1.0 | 12/10/15 00:44 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 0.030 | mg/kg | 0.0059 | 12/11/15 20:54 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 0.040 | mg/kg | 0.0059 | 12/11/15 20:54 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 0.041 | mg/kg | 0.0059 | 12/11/15 20:54 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 0.027 | mg/kg | 0.0059 | 12/11/15 20:54 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.033 | mg/kg | 0.0059 | 12/11/15 20:54 | |
| EPA 8270 by SIM | Chrysene | 0.039 | mg/kg | 0.0059 | 12/11/15 20:54 | |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 0.011 | mg/kg | 0.0059 | 12/11/15 20:54 | |
| EPA 8270 by SIM | Fluoranthene | 0.033 | mg/kg | 0.0059 | 12/11/15 20:54 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.024 | mg/kg | 0.0059 | 12/11/15 20:54 | |

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## SUMMARY OF DETECTION

Project: Mud Run Gun Club
Pace Project No.: 50133848

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **50133848042** | **SB-22:0-1** | | | | | |
| EPA 8270 by SIM | Phenanthrene | 0.0080 | mg/kg | 0.0059 | 12/11/15 20:54 | |
| EPA 8270 by SIM | Pyrene | 0.034 | mg/kg | 0.0059 | 12/11/15 20:54 | |
| ASTM D2974-87 | Percent Moisture | 16.2 | % | 0.10 | 12/07/15 09:03 | |
| **50133848043** | **SB-23:0-1** | | | | | |
| EPA 6010 | Antimony | 3.0 | mg/kg | 1.1 | 12/10/15 00:50 | |
| EPA 6010 | Arsenic | 15.7 | mg/kg | 1.1 | 12/10/15 00:50 | |
| EPA 6010 | Lead | 103 | mg/kg | 1.1 | 12/10/15 00:50 | |
| EPA 6010 | Nickel | 20.7 | mg/kg | 1.1 | 12/10/15 00:50 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 0.026 | mg/kg | 0.0060 | 12/11/15 21:12 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 0.030 | mg/kg | 0.0060 | 12/11/15 21:12 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 0.025 | mg/kg | 0.0060 | 12/11/15 21:12 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 0.022 | mg/kg | 0.0060 | 12/11/15 21:12 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.019 | mg/kg | 0.0060 | 12/11/15 21:12 | |
| EPA 8270 by SIM | Chrysene | 0.043 | mg/kg | 0.0060 | 12/11/15 21:12 | |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 0.0093 | mg/kg | 0.0060 | 12/11/15 21:12 | |
| EPA 8270 by SIM | Fluoranthene | 0.028 | mg/kg | 0.0060 | 12/11/15 21:12 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.016 | mg/kg | 0.0060 | 12/11/15 21:12 | |
| EPA 8270 by SIM | Naphthalene | 0.030 | mg/kg | 0.0060 | 12/11/15 21:12 | |
| EPA 8270 by SIM | Phenanthrene | 0.018 | mg/kg | 0.0060 | 12/11/15 21:12 | |
| EPA 8270 by SIM | Pyrene | 0.030 | mg/kg | 0.0060 | 12/11/15 21:12 | |
| ASTM D2974-87 | Percent Moisture | 16.7 | % | 0.10 | 12/07/15 09:23 | |
| **50133848044** | **SB-24:2-3** | | | | | |
| EPA 6010 | Lead | 27.7 | mg/kg | 1.1 | 12/10/15 00:53 | |
| ASTM D2974-87 | Percent Moisture | 16.2 | % | 0.10 | 12/07/15 09:23 | |
| **50133848045** | **SB-25:2-3** | | | | | |
| EPA 6010 | Lead | 51.4 | mg/kg | 1.2 | 12/10/15 00:55 | |
| ASTM D2974-87 | Percent Moisture | 17.5 | % | 0.10 | 12/07/15 09:23 | |
| **50133848046** | **SB-26:2-3** | | | | | |
| EPA 6010 | Lead | 15.3 | mg/kg | 1.1 | 12/10/15 00:57 | |
| ASTM D2974-87 | Percent Moisture | 13.9 | % | 0.10 | 12/07/15 09:23 | |
| **50133848047** | **SB-27:2-3** | | | | | |
| EPA 6010 | Lead | 17.0 | mg/kg | 1.2 | 12/10/15 00:59 | |
| ASTM D2974-87 | Percent Moisture | 22.2 | % | 0.10 | 12/07/15 09:23 | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SD-1:0-1** **Lab ID: 50133848001** Collected: 12/03/15 15:00 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Antimony | ND | mg/kg | 1.1 | 1 | 12/07/15 12:30 | 12/08/15 01:10 | 7440-36-0 | |
| Arsenic | **10.4** | mg/kg | 1.1 | 1 | 12/07/15 12:30 | 12/08/15 01:10 | 7440-38-2 | |
| Lead | **6.4** | mg/kg | 1.1 | 1 | 12/07/15 12:30 | 12/08/15 01:10 | 7439-92-1 | |
| Nickel | **8.1** | mg/kg | 1.1 | 1 | 12/07/15 12:30 | 12/08/15 01:10 | 7440-02-0 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/10/15 13:05 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/10/15 13:05 | 208-96-8 | |
| Anthracene | ND | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/10/15 13:05 | 120-12-7 | |
| Benzo(a)anthracene | **0.073** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/10/15 13:05 | 56-55-3 | |
| Benzo(a)pyrene | **0.069** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/10/15 13:05 | 50-32-8 | |
| Benzo(b)fluoranthene | **0.089** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/10/15 13:05 | 205-99-2 | |
| Benzo(g,h,i)perylene | **0.053** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/10/15 13:05 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.075** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/10/15 13:05 | 207-08-9 | |
| Chrysene | **0.11** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/10/15 13:05 | 218-01-9 | |
| Dibenz(a,h)anthracene | ND | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/10/15 13:05 | 53-70-3 | |
| Fluoranthene | **0.17** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/10/15 13:05 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/10/15 13:05 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.047** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/10/15 13:05 | 193-39-5 | |
| 2-Methylnaphthalene | ND | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/10/15 13:05 | 91-57-6 | |
| Naphthalene | ND | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/10/15 13:05 | 91-20-3 | 1d |
| Phenanthrene | **0.051** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/10/15 13:05 | 85-01-8 | |
| Pyrene | **0.13** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/10/15 13:05 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 55 | %. | 38-110 | 5 | 12/07/15 11:25 | 12/10/15 13:05 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 52 | %. | 32-111 | 5 | 12/07/15 11:25 | 12/10/15 13:05 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **15.5** | % | 0.10 | 1 | | 12/07/15 08:41 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SD-2:0-1** **Lab ID: 50133848002** Collected: 12/03/15 14:55 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Antimony | ND | mg/kg | 2.1 | 2 | 12/07/15 12:30 | 12/08/15 04:37 | 7440-36-0 | D3 |
| Arsenic | **7.6** | mg/kg | 2.1 | 2 | 12/07/15 12:30 | 12/08/15 04:37 | 7440-38-2 | |
| Lead | **9.8** | mg/kg | 2.1 | 2 | 12/07/15 12:30 | 12/08/15 04:37 | 7439-92-1 | |
| Nickel | **8.7** | mg/kg | 2.1 | 2 | 12/07/15 12:30 | 12/08/15 04:37 | 7440-02-0 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/09/15 08:51 | 83-32-9 | |
| Acenaphthylene | **0.043** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/09/15 08:51 | 208-96-8 | |
| Anthracene | **0.039** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/09/15 08:51 | 120-12-7 | |
| Benzo(a)anthracene | **0.13** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/09/15 08:51 | 56-55-3 | |
| Benzo(a)pyrene | **0.14** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/09/15 08:51 | 50-32-8 | |
| Benzo(b)fluoranthene | **0.15** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/09/15 08:51 | 205-99-2 | |
| Benzo(g,h,i)perylene | **0.11** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/09/15 08:51 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.15** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/09/15 08:51 | 207-08-9 | |
| Chrysene | **0.17** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/09/15 08:51 | 218-01-9 | |
| Dibenz(a,h)anthracene | **0.051** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/09/15 08:51 | 53-70-3 | |
| Fluoranthene | **0.39** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/09/15 08:51 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/09/15 08:51 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.10** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/09/15 08:51 | 193-39-5 | |
| 2-Methylnaphthalene | ND | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/09/15 08:51 | 91-57-6 | |
| Naphthalene | ND | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/09/15 08:51 | 91-20-3 | 1d |
| Phenanthrene | **0.19** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/09/15 08:51 | 85-01-8 | |
| Pyrene | **0.30** | mg/kg | 0.029 | 5 | 12/07/15 11:25 | 12/09/15 08:51 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 63 | %. | 38-110 | 5 | 12/07/15 11:25 | 12/09/15 08:51 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 49 | %. | 32-111 | 5 | 12/07/15 11:25 | 12/09/15 08:51 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **13.8** | % | 0.10 | 1 | | 12/07/15 08:41 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SD-3:0-1** **Lab ID: 50133848003** Collected: 12/03/15 14:50 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Antimony | ND | mg/kg | 1.2 | 1 | 12/07/15 12:30 | 12/08/15 01:22 | 7440-36-0 | |
| Arsenic | **9.5** | mg/kg | 1.2 | 1 | 12/07/15 12:30 | 12/08/15 01:22 | 7440-38-2 | |
| Lead | **12.0** | mg/kg | 1.2 | 1 | 12/07/15 12:30 | 12/08/15 01:22 | 7439-92-1 | |
| Nickel | **14.6** | mg/kg | 1.2 | 1 | 12/07/15 12:30 | 12/08/15 01:22 | 7440-02-0 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.0063 | 1 | 12/07/15 11:25 | 12/09/15 09:09 | 83-32-9 | |
| Acenaphthylene | **0.010** | mg/kg | 0.0063 | 1 | 12/07/15 11:25 | 12/09/15 09:09 | 208-96-8 | |
| Anthracene | **0.023** | mg/kg | 0.0063 | 1 | 12/07/15 11:25 | 12/09/15 09:09 | 120-12-7 | |
| Benzo(a)anthracene | **0.057** | mg/kg | 0.0063 | 1 | 12/07/15 11:25 | 12/09/15 09:09 | 56-55-3 | |
| Benzo(a)pyrene | **0.053** | mg/kg | 0.0063 | 1 | 12/07/15 11:25 | 12/09/15 09:09 | 50-32-8 | |
| Benzo(b)fluoranthene | **0.066** | mg/kg | 0.0063 | 1 | 12/07/15 11:25 | 12/09/15 09:09 | 205-99-2 | |
| Benzo(g,h,i)perylene | **0.037** | mg/kg | 0.0063 | 1 | 12/07/15 11:25 | 12/09/15 09:09 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.043** | mg/kg | 0.0063 | 1 | 12/07/15 11:25 | 12/09/15 09:09 | 207-08-9 | |
| Chrysene | **0.064** | mg/kg | 0.0063 | 1 | 12/07/15 11:25 | 12/09/15 09:09 | 218-01-9 | |
| Dibenz(a,h)anthracene | **0.018** | mg/kg | 0.0063 | 1 | 12/07/15 11:25 | 12/09/15 09:09 | 53-70-3 | |
| Fluoranthene | **0.15** | mg/kg | 0.0063 | 1 | 12/07/15 11:25 | 12/09/15 09:09 | 206-44-0 | |
| Fluorene | **0.0084** | mg/kg | 0.0063 | 1 | 12/07/15 11:25 | 12/09/15 09:09 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.035** | mg/kg | 0.0063 | 1 | 12/07/15 11:25 | 12/09/15 09:09 | 193-39-5 | |
| 2-Methylnaphthalene | ND | mg/kg | 0.0063 | 1 | 12/07/15 11:25 | 12/09/15 09:09 | 91-57-6 | |
| Naphthalene | **0.0089** | mg/kg | 0.0063 | 1 | 12/07/15 11:25 | 12/09/15 09:09 | 91-20-3 | |
| Phenanthrene | **0.086** | mg/kg | 0.0063 | 1 | 12/07/15 11:25 | 12/09/15 09:09 | 85-01-8 | |
| Pyrene | **0.11** | mg/kg | 0.0063 | 1 | 12/07/15 11:25 | 12/09/15 09:09 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 78 | %. | 38-110 | 1 | 12/07/15 11:25 | 12/09/15 09:09 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 63 | %. | 32-111 | 1 | 12/07/15 11:25 | 12/09/15 09:09 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **20.8** | % | 0.10 | 1 | | 12/07/15 08:41 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SD-4:0-1** **Lab ID: 50133848004** Collected: 12/03/15 14:45 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Antimony | ND | mg/kg | 1.3 | 1 | 12/07/15 12:30 | 12/08/15 01:24 | 7440-36-0 | |
| Arsenic | **11.7** | mg/kg | 1.3 | 1 | 12/07/15 12:30 | 12/08/15 01:24 | 7440-38-2 | |
| Lead | **15.5** | mg/kg | 1.3 | 1 | 12/07/15 12:30 | 12/08/15 01:24 | 7439-92-1 | |
| Nickel | **13.4** | mg/kg | 1.3 | 1 | 12/07/15 12:30 | 12/08/15 01:24 | 7440-02-0 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | **0.014** | mg/kg | 0.0069 | 1 | 12/07/15 11:25 | 12/09/15 09:26 | 83-32-9 | |
| Acenaphthylene | **0.014** | mg/kg | 0.0069 | 1 | 12/07/15 11:25 | 12/09/15 09:26 | 208-96-8 | |
| Anthracene | **0.045** | mg/kg | 0.0069 | 1 | 12/07/15 11:25 | 12/09/15 09:26 | 120-12-7 | |
| Benzo(a)anthracene | **0.13** | mg/kg | 0.0069 | 1 | 12/07/15 11:25 | 12/09/15 09:26 | 56-55-3 | |
| Benzo(a)pyrene | **0.12** | mg/kg | 0.0069 | 1 | 12/07/15 11:25 | 12/09/15 09:26 | 50-32-8 | |
| Benzo(b)fluoranthene | **0.12** | mg/kg | 0.0069 | 1 | 12/07/15 11:25 | 12/09/15 09:26 | 205-99-2 | |
| Benzo(g,h,i)perylene | **0.085** | mg/kg | 0.0069 | 1 | 12/07/15 11:25 | 12/09/15 09:26 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.13** | mg/kg | 0.0069 | 1 | 12/07/15 11:25 | 12/09/15 09:26 | 207-08-9 | |
| Chrysene | **0.15** | mg/kg | 0.0069 | 1 | 12/07/15 11:25 | 12/09/15 09:26 | 218-01-9 | |
| Dibenz(a,h)anthracene | **0.045** | mg/kg | 0.0069 | 1 | 12/07/15 11:25 | 12/09/15 09:26 | 53-70-3 | |
| Fluoranthene | **0.30** | mg/kg | 0.0069 | 1 | 12/07/15 11:25 | 12/09/15 09:26 | 206-44-0 | |
| Fluorene | **0.021** | mg/kg | 0.0069 | 1 | 12/07/15 11:25 | 12/09/15 09:26 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.080** | mg/kg | 0.0069 | 1 | 12/07/15 11:25 | 12/09/15 09:26 | 193-39-5 | |
| 2-Methylnaphthalene | **0.0080** | mg/kg | 0.0069 | 1 | 12/07/15 11:25 | 12/09/15 09:26 | 91-57-6 | |
| Naphthalene | **0.027** | mg/kg | 0.0069 | 1 | 12/07/15 11:25 | 12/09/15 09:26 | 91-20-3 | |
| Phenanthrene | **0.17** | mg/kg | 0.0069 | 1 | 12/07/15 11:25 | 12/09/15 09:26 | 85-01-8 | |
| Pyrene | **0.23** | mg/kg | 0.0069 | 1 | 12/07/15 11:25 | 12/09/15 09:26 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 75 | %. | 38-110 | 1 | 12/07/15 11:25 | 12/09/15 09:26 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 59 | %. | 32-111 | 1 | 12/07/15 11:25 | 12/09/15 09:26 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **27.2** | % | 0.10 | 1 | | 12/07/15 08:41 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SD-5:0-1** **Lab ID: 50133848005** Collected: 12/03/15 14:40 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Antimony | **2.6** | mg/kg | 1.1 | 1 | 12/07/15 12:30 | 12/08/15 01:26 | 7440-36-0 | |
| Arsenic | **100** | mg/kg | 1.1 | 1 | 12/07/15 12:30 | 12/08/15 01:26 | 7440-38-2 | |
| Lead | **131** | mg/kg | 1.1 | 1 | 12/07/15 12:30 | 12/08/15 01:26 | 7439-92-1 | |
| Nickel | **36.6** | mg/kg | 1.1 | 1 | 12/07/15 12:30 | 12/08/15 01:26 | 7440-02-0 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | **0.0064** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/09/15 09:44 | 83-32-9 | |
| Acenaphthylene | **0.0064** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/09/15 09:44 | 208-96-8 | |
| Anthracene | **0.020** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/09/15 09:44 | 120-12-7 | |
| Benzo(a)anthracene | **0.092** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/09/15 09:44 | 56-55-3 | |
| Benzo(a)pyrene | **0.088** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/09/15 09:44 | 50-32-8 | |
| Benzo(b)fluoranthene | **0.12** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/09/15 09:44 | 205-99-2 | |
| Benzo(g,h,i)perylene | **0.063** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/09/15 09:44 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.075** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/09/15 09:44 | 207-08-9 | |
| Chrysene | **0.11** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/09/15 09:44 | 218-01-9 | |
| Dibenz(a,h)anthracene | **0.029** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/09/15 09:44 | 53-70-3 | |
| Fluoranthene | **0.26** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/09/15 09:44 | 206-44-0 | |
| Fluorene | **0.0090** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/09/15 09:44 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.059** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/09/15 09:44 | 193-39-5 | |
| 2-Methylnaphthalene | ND | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/09/15 09:44 | 91-57-6 | |
| Naphthalene | ND | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/09/15 09:44 | 91-20-3 | |
| Phenanthrene | **0.12** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/09/15 09:44 | 85-01-8 | |
| Pyrene | **0.20** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/09/15 09:44 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 66 | %. | 38-110 | 1 | 12/07/15 11:25 | 12/09/15 09:44 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 53 | %. | 32-111 | 1 | 12/07/15 11:25 | 12/09/15 09:44 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **17.2** | % | 0.10 | 1 | | 12/07/15 08:42 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SD-6:0-1** **Lab ID: 50133848006** Collected: 12/03/15 14:00 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Antimony | ND | mg/kg | 1.1 | 1 | 12/07/15 12:30 | 12/08/15 01:28 | 7440-36-0 | |
| Arsenic | **9.7** | mg/kg | 1.1 | 1 | 12/07/15 12:30 | 12/08/15 01:28 | 7440-38-2 | |
| Lead | **19.5** | mg/kg | 1.1 | 1 | 12/07/15 12:30 | 12/08/15 01:28 | 7439-92-1 | |
| Nickel | **11.2** | mg/kg | 1.1 | 1 | 12/07/15 12:30 | 12/08/15 01:28 | 7440-02-0 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | **0.034** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/09/15 10:02 | 83-32-9 | |
| Acenaphthylene | **0.030** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/09/15 10:02 | 208-96-8 | |
| Anthracene | **0.24** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/09/15 10:02 | 120-12-7 | |
| Benzo(a)anthracene | **7.9** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/09/15 10:02 | 56-55-3 | |
| Benzo(a)pyrene | **4.6** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/09/15 10:02 | 50-32-8 | C0,IS |
| Benzo(b)fluoranthene | **2.3** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/09/15 10:02 | 205-99-2 | |
| Benzo(g,h,i)perylene | **2.4** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/09/15 10:02 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.74** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/09/15 10:02 | 207-08-9 | |
| Chrysene | **14.6** | mg/kg | 0.15 | 25 | 12/07/15 11:25 | 12/10/15 12:30 | 218-01-9 | |
| Dibenz(a,h)anthracene | **1.5** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/09/15 10:02 | 53-70-3 | |
| Fluoranthene | **1.5** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/09/15 10:02 | 206-44-0 | |
| Fluorene | **0.056** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/09/15 10:02 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.75** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/09/15 10:02 | 193-39-5 | |
| 2-Methylnaphthalene | **0.045** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/09/15 10:02 | 91-57-6 | |
| Naphthalene | ND | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/09/15 10:02 | 91-20-3 | 1d |
| Phenanthrene | **1.2** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/09/15 10:02 | 85-01-8 | |
| Pyrene | **4.7** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/09/15 10:02 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 58 | %. | 38-110 | 5 | 12/07/15 11:25 | 12/09/15 10:02 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 65 | %. | 32-111 | 5 | 12/07/15 11:25 | 12/09/15 10:02 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **16.5** | % | 0.10 | 1 | | 12/07/15 08:42 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SD-7:0-1** **Lab ID: 50133848007** Collected: 12/03/15 13:55 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Antimony | ND | mg/kg | 1.1 | 1 | 12/07/15 12:30 | 12/08/15 01:37 | 7440-36-0 | |
| Arsenic | **9.0** | mg/kg | 1.1 | 1 | 12/07/15 12:30 | 12/08/15 01:37 | 7440-38-2 | |
| Lead | **15.9** | mg/kg | 1.1 | 1 | 12/07/15 12:30 | 12/08/15 01:37 | 7439-92-1 | |
| Nickel | **11.3** | mg/kg | 1.1 | 1 | 12/07/15 12:30 | 12/08/15 01:37 | 7440-02-0 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | **0.024** | mg/kg | 0.0064 | 1 | 12/07/15 11:25 | 12/09/15 10:19 | 83-32-9 | |
| Acenaphthylene | **0.018** | mg/kg | 0.0064 | 1 | 12/07/15 11:25 | 12/09/15 10:19 | 208-96-8 | |
| Anthracene | **0.052** | mg/kg | 0.0064 | 1 | 12/07/15 11:25 | 12/09/15 10:19 | 120-12-7 | |
| Benzo(a)anthracene | **0.093** | mg/kg | 0.0064 | 1 | 12/07/15 11:25 | 12/09/15 10:19 | 56-55-3 | |
| Benzo(a)pyrene | **0.090** | mg/kg | 0.0064 | 1 | 12/07/15 11:25 | 12/09/15 10:19 | 50-32-8 | |
| Benzo(b)fluoranthene | **0.10** | mg/kg | 0.0064 | 1 | 12/07/15 11:25 | 12/09/15 10:19 | 205-99-2 | |
| Benzo(g,h,i)perylene | **0.060** | mg/kg | 0.0064 | 1 | 12/07/15 11:25 | 12/09/15 10:19 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.064** | mg/kg | 0.0064 | 1 | 12/07/15 11:25 | 12/09/15 10:19 | 207-08-9 | |
| Chrysene | **0.098** | mg/kg | 0.0064 | 1 | 12/07/15 11:25 | 12/09/15 10:19 | 218-01-9 | |
| Dibenz(a,h)anthracene | **0.030** | mg/kg | 0.0064 | 1 | 12/07/15 11:25 | 12/09/15 10:19 | 53-70-3 | |
| Fluoranthene | **0.20** | mg/kg | 0.0064 | 1 | 12/07/15 11:25 | 12/09/15 10:19 | 206-44-0 | |
| Fluorene | **0.028** | mg/kg | 0.0064 | 1 | 12/07/15 11:25 | 12/09/15 10:19 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.056** | mg/kg | 0.0064 | 1 | 12/07/15 11:25 | 12/09/15 10:19 | 193-39-5 | |
| 2-Methylnaphthalene | **0.016** | mg/kg | 0.0064 | 1 | 12/07/15 11:25 | 12/09/15 10:19 | 91-57-6 | |
| Naphthalene | **0.017** | mg/kg | 0.0064 | 1 | 12/07/15 11:25 | 12/09/15 10:19 | 91-20-3 | C0,IS |
| Phenanthrene | **0.13** | mg/kg | 0.0064 | 1 | 12/07/15 11:25 | 12/09/15 10:19 | 85-01-8 | |
| Pyrene | **0.18** | mg/kg | 0.0064 | 1 | 12/07/15 11:25 | 12/09/15 10:19 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 66 | %. | 38-110 | 1 | 12/07/15 11:25 | 12/09/15 10:19 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 44 | %. | 32-111 | 1 | 12/07/15 11:25 | 12/09/15 10:19 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **22.2** | % | 0.10 | 1 | | 12/07/15 08:42 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SD-8:0-1** **Lab ID: 50133848008** Collected: 12/03/15 13:50 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Antimony | ND | mg/kg | 1.2 | 1 | 12/07/15 12:30 | 12/08/15 01:39 | 7440-36-0 | |
| Arsenic | **6.3** | mg/kg | 1.2 | 1 | 12/07/15 12:30 | 12/08/15 01:39 | 7440-38-2 | |
| Lead | **30.7** | mg/kg | 1.2 | 1 | 12/07/15 12:30 | 12/08/15 01:39 | 7439-92-1 | |
| Nickel | **10.6** | mg/kg | 1.2 | 1 | 12/07/15 12:30 | 12/08/15 01:39 | 7440-02-0 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | **0.080** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/09/15 10:37 | 83-32-9 | |
| Acenaphthylene | **0.13** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/09/15 10:37 | 208-96-8 | |
| Anthracene | **0.29** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/09/15 10:37 | 120-12-7 | |
| Benzo(a)anthracene | **0.88** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/09/15 10:37 | 56-55-3 | |
| Benzo(a)pyrene | **0.79** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/09/15 10:37 | 50-32-8 | |
| Benzo(b)fluoranthene | **0.76** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/09/15 10:37 | 205-99-2 | |
| Benzo(g,h,i)perylene | **0.51** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/09/15 10:37 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.78** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/09/15 10:37 | 207-08-9 | |
| Chrysene | **1.0** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/09/15 10:37 | 218-01-9 | |
| Dibenz(a,h)anthracene | **0.27** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/09/15 10:37 | 53-70-3 | |
| Fluoranthene | **2.0** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/09/15 10:37 | 206-44-0 | |
| Fluorene | **0.085** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/09/15 10:37 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.49** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/09/15 10:37 | 193-39-5 | |
| 2-Methylnaphthalene | **0.032** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/09/15 10:37 | 91-57-6 | |
| Naphthalene | **0.032** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/09/15 10:37 | 91-20-3 | 1d |
| Phenanthrene | **1.1** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/09/15 10:37 | 85-01-8 | |
| Pyrene | **1.5** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/09/15 10:37 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 66 | %. | 38-110 | 5 | 12/07/15 11:25 | 12/09/15 10:37 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 57 | %. | 32-111 | 5 | 12/07/15 11:25 | 12/09/15 10:37 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **21.0** | % | 0.10 | 1 | | 12/07/15 08:42 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SD-9:0-1** **Lab ID: 50133848009** Collected: 12/03/15 13:45 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Antimony | ND | mg/kg | 1.0 | 1 | 12/07/15 12:30 | 12/08/15 01:41 | 7440-36-0 | |
| Arsenic | **10.2** | mg/kg | 1.0 | 1 | 12/07/15 12:30 | 12/08/15 01:41 | 7440-38-2 | |
| Lead | **17.7** | mg/kg | 1.0 | 1 | 12/07/15 12:30 | 12/08/15 01:41 | 7439-92-1 | |
| Nickel | **10.4** | mg/kg | 1.0 | 1 | 12/07/15 12:30 | 12/08/15 01:41 | 7440-02-0 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/09/15 10:54 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/09/15 10:54 | 208-96-8 | |
| Anthracene | **0.0090** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/09/15 10:54 | 120-12-7 | |
| Benzo(a)anthracene | **0.022** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/09/15 10:54 | 56-55-3 | |
| Benzo(a)pyrene | **0.019** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/09/15 10:54 | 50-32-8 | |
| Benzo(b)fluoranthene | **0.020** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/09/15 10:54 | 205-99-2 | |
| Benzo(g,h,i)perylene | **0.016** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/09/15 10:54 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.019** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/09/15 10:54 | 207-08-9 | |
| Chrysene | **0.027** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/09/15 10:54 | 218-01-9 | |
| Dibenz(a,h)anthracene | **0.0067** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/09/15 10:54 | 53-70-3 | |
| Fluoranthene | **0.059** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/09/15 10:54 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/09/15 10:54 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.013** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/09/15 10:54 | 193-39-5 | |
| 2-Methylnaphthalene | ND | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/09/15 10:54 | 91-57-6 | |
| Naphthalene | ND | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/09/15 10:54 | 91-20-3 | |
| Phenanthrene | **0.029** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/09/15 10:54 | 85-01-8 | |
| Pyrene | **0.046** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/09/15 10:54 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 67 | %. | 38-110 | 1 | 12/07/15 11:25 | 12/09/15 10:54 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 47 | %. | 32-111 | 1 | 12/07/15 11:25 | 12/09/15 10:54 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **15.7** | % | 0.10 | 1 | | 12/07/15 08:42 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SD-10:0-1** **Lab ID: 50133848010** Collected: 12/03/15 13:40 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Antimony | ND | mg/kg | 1.0 | 1 | 12/07/15 12:30 | 12/08/15 01:43 | 7440-36-0 | |
| Arsenic | **11.0** | mg/kg | 1.0 | 1 | 12/07/15 12:30 | 12/08/15 01:43 | 7440-38-2 | |
| Lead | **24.8** | mg/kg | 1.0 | 1 | 12/07/15 12:30 | 12/08/15 01:43 | 7439-92-1 | |
| Nickel | **9.6** | mg/kg | 1.0 | 1 | 12/07/15 12:30 | 12/08/15 01:43 | 7440-02-0 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.028 | 5 | 12/07/15 11:25 | 12/09/15 11:11 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.028 | 5 | 12/07/15 11:25 | 12/09/15 11:11 | 208-96-8 | |
| Anthracene | **0.028** | mg/kg | 0.028 | 5 | 12/07/15 11:25 | 12/09/15 11:11 | 120-12-7 | |
| Benzo(a)anthracene | **0.37** | mg/kg | 0.028 | 5 | 12/07/15 11:25 | 12/09/15 11:11 | 56-55-3 | |
| Benzo(a)pyrene | **0.33** | mg/kg | 0.028 | 5 | 12/07/15 11:25 | 12/09/15 11:11 | 50-32-8 | |
| Benzo(b)fluoranthene | **0.22** | mg/kg | 0.028 | 5 | 12/07/15 11:25 | 12/09/15 11:11 | 205-99-2 | |
| Benzo(g,h,i)perylene | **0.19** | mg/kg | 0.028 | 5 | 12/07/15 11:25 | 12/09/15 11:11 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.11** | mg/kg | 0.028 | 5 | 12/07/15 11:25 | 12/09/15 11:11 | 207-08-9 | |
| Chrysene | **0.65** | mg/kg | 0.028 | 5 | 12/07/15 11:25 | 12/09/15 11:11 | 218-01-9 | |
| Dibenz(a,h)anthracene | **0.11** | mg/kg | 0.028 | 5 | 12/07/15 11:25 | 12/09/15 11:11 | 53-70-3 | |
| Fluoranthene | **0.26** | mg/kg | 0.028 | 5 | 12/07/15 11:25 | 12/09/15 11:11 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.028 | 5 | 12/07/15 11:25 | 12/09/15 11:11 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.11** | mg/kg | 0.028 | 5 | 12/07/15 11:25 | 12/09/15 11:11 | 193-39-5 | |
| 2-Methylnaphthalene | ND | mg/kg | 0.028 | 5 | 12/07/15 11:25 | 12/09/15 11:11 | 91-57-6 | |
| Naphthalene | ND | mg/kg | 0.028 | 5 | 12/07/15 11:25 | 12/09/15 11:11 | 91-20-3 | 1d |
| Phenanthrene | **0.11** | mg/kg | 0.028 | 5 | 12/07/15 11:25 | 12/09/15 11:11 | 85-01-8 | |
| Pyrene | **0.32** | mg/kg | 0.028 | 5 | 12/07/15 11:25 | 12/09/15 11:11 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 54 | %. | 38-110 | 5 | 12/07/15 11:25 | 12/09/15 11:11 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 49 | %. | 32-111 | 5 | 12/07/15 11:25 | 12/09/15 11:11 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **11.5** | % | 0.10 | 1 | | 12/07/15 08:42 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SD-10A:0-1** **Lab ID: 50133848011** Collected: 12/03/15 13:40 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Antimony | ND | mg/kg | 1.0 | 1 | 12/07/15 12:30 | 12/08/15 01:45 | 7440-36-0 | |
| Arsenic | **7.2** | mg/kg | 1.0 | 1 | 12/07/15 12:30 | 12/08/15 01:45 | 7440-38-2 | |
| Lead | **15.4** | mg/kg | 1.0 | 1 | 12/07/15 12:30 | 12/08/15 01:45 | 7439-92-1 | |
| Nickel | **7.9** | mg/kg | 1.0 | 1 | 12/07/15 12:30 | 12/08/15 01:45 | 7440-02-0 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.090 | 5 | 12/07/15 11:25 | 12/10/15 19:08 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.090 | 5 | 12/07/15 11:25 | 12/10/15 19:08 | 208-96-8 | |
| Anthracene | **0.090** | mg/kg | 0.090 | 5 | 12/07/15 11:25 | 12/10/15 19:08 | 120-12-7 | |
| Benzo(a)anthracene | **4.0** | mg/kg | 0.090 | 5 | 12/07/15 11:25 | 12/10/15 19:08 | 56-55-3 | |
| Benzo(a)pyrene | **3.3** | mg/kg | 0.090 | 5 | 12/07/15 11:25 | 12/10/15 19:08 | 50-32-8 | |
| Benzo(b)fluoranthene | **1.5** | mg/kg | 0.090 | 5 | 12/07/15 11:25 | 12/10/15 19:08 | 205-99-2 | |
| Benzo(g,h,i)perylene | **1.6** | mg/kg | 0.090 | 5 | 12/07/15 11:25 | 12/10/15 19:08 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.51** | mg/kg | 0.090 | 5 | 12/07/15 11:25 | 12/10/15 19:08 | 207-08-9 | |
| Chrysene | **7.7** | mg/kg | 0.090 | 5 | 12/07/15 11:25 | 12/10/15 19:08 | 218-01-9 | |
| Dibenz(a,h)anthracene | **0.92** | mg/kg | 0.090 | 5 | 12/07/15 11:25 | 12/10/15 19:08 | 53-70-3 | |
| Fluoranthene | **0.33** | mg/kg | 0.090 | 5 | 12/07/15 11:25 | 12/10/15 19:08 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.090 | 5 | 12/07/15 11:25 | 12/10/15 19:08 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.55** | mg/kg | 0.090 | 5 | 12/07/15 11:25 | 12/10/15 19:08 | 193-39-5 | |
| 2-Methylnaphthalene | ND | mg/kg | 0.090 | 5 | 12/07/15 11:25 | 12/10/15 19:08 | 91-57-6 | |
| Naphthalene | ND | mg/kg | 0.090 | 5 | 12/07/15 11:25 | 12/10/15 19:08 | 91-20-3 | 1d |
| Phenanthrene | **0.36** | mg/kg | 0.090 | 5 | 12/07/15 11:25 | 12/10/15 19:08 | 85-01-8 | |
| Pyrene | **1.8** | mg/kg | 0.090 | 5 | 12/07/15 11:25 | 12/10/15 19:08 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 63 | %. | 38-110 | 5 | 12/07/15 11:25 | 12/10/15 19:08 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 75 | %. | 32-111 | 5 | 12/07/15 11:25 | 12/10/15 19:08 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **17.1** | % | 0.10 | 1 | | 12/07/15 08:42 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: TCLP-1:0-0.5** **Lab ID: 50133848012** Collected: 12/03/15 15:55 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP, TCLP** | Analytical Method: EPA 6010 Preparation Method: EPA 3010<br>Leachate Method/Date: EPA 1311; 12/07/15 15:50 | | | | | | | |
| Arsenic | **2.9** | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:28 | 7440-38-2 | |
| Barium | ND | mg/L | 5.0 | 1 | 12/08/15 17:08 | 12/09/15 02:28 | 7440-39-3 | |
| Cadmium | ND | mg/L | 0.050 | 1 | 12/08/15 17:08 | 12/09/15 02:28 | 7440-43-9 | |
| Chromium | ND | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:28 | 7440-47-3 | |
| Lead | **706** | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:28 | 7439-92-1 | |
| Selenium | ND | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:28 | 7782-49-2 | |
| Silver | ND | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:28 | 7440-22-4 | |
| **7470 Mercury, TCLP** | Analytical Method: EPA 7470 Preparation Method: EPA 7470<br>Leachate Method/Date: EPA 1311; 12/07/15 15:50 | | | | | | | |
| Mercury | ND | mg/L | 0.0020 | 1 | 12/10/15 21:58 | 12/11/15 09:33 | 7439-97-6 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:07 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:07 | 208-96-8 | |
| Anthracene | **0.10** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:07 | 120-12-7 | |
| Benzo(a)anthracene | **1.6** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:07 | 56-55-3 | |
| Benzo(a)pyrene | **1.4** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:07 | 50-32-8 | |
| Benzo(b)fluoranthene | **1.0** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:07 | 205-99-2 | |
| Benzo(g,h,i)perylene | **0.85** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:07 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.44** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:07 | 207-08-9 | |
| Chrysene | **2.8** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:07 | 218-01-9 | |
| Dibenz(a,h)anthracene | **0.46** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:07 | 53-70-3 | |
| Fluoranthene | **0.67** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:07 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:07 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.48** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:07 | 193-39-5 | |
| 2-Methylnaphthalene | ND | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:07 | 91-57-6 | |
| Naphthalene | ND | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:07 | 91-20-3 | |
| Phenanthrene | **0.36** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:07 | 85-01-8 | |
| Pyrene | **1.3** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:07 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 64 | %. | 38-110 | 5 | 12/07/15 11:25 | 12/11/15 17:07 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 70 | %. | 32-111 | 5 | 12/07/15 11:25 | 12/11/15 17:07 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **22.2** | % | 0.10 | 1 | | 12/07/15 08:42 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: TCLP-2:0-0.5** **Lab ID: 50133848013** Collected: 12/03/15 16:00 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP, TCLP** | Analytical Method: EPA 6010 Preparation Method: EPA 3010<br>Leachate Method/Date: EPA 1311; 12/07/15 15:50 | | | | | | | |
| Arsenic | **0.54** | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:36 | 7440-38-2 | |
| Barium | ND | mg/L | 5.0 | 1 | 12/08/15 17:08 | 12/09/15 02:36 | 7440-39-3 | |
| Cadmium | ND | mg/L | 0.050 | 1 | 12/08/15 17:08 | 12/09/15 02:36 | 7440-43-9 | |
| Chromium | ND | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:36 | 7440-47-3 | |
| Lead | **130** | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:36 | 7439-92-1 | |
| Selenium | ND | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:36 | 7782-49-2 | |
| Silver | ND | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:36 | 7440-22-4 | |
| **7470 Mercury, TCLP** | Analytical Method: EPA 7470 Preparation Method: EPA 7470<br>Leachate Method/Date: EPA 1311; 12/07/15 15:50 | | | | | | | |
| Mercury | ND | mg/L | 0.0020 | 1 | 12/10/15 21:58 | 12/11/15 09:37 | 7439-97-6 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/11/15 17:25 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/11/15 17:25 | 208-96-8 | |
| Anthracene | **0.085** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/11/15 17:25 | 120-12-7 | |
| Benzo(a)anthracene | **3.7** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/11/15 17:25 | 56-55-3 | |
| Benzo(a)pyrene | **2.8** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/11/15 17:25 | 50-32-8 | |
| Benzo(b)fluoranthene | **1.2** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/11/15 17:25 | 205-99-2 | |
| Benzo(g,h,i)perylene | **1.4** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/11/15 17:25 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.51** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/11/15 17:25 | 207-08-9 | |
| Chrysene | **6.2** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/11/15 17:25 | 218-01-9 | C0,IS |
| Dibenz(a,h)anthracene | **0.79** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/11/15 17:25 | 53-70-3 | |
| Fluoranthene | **0.33** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/11/15 17:25 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/11/15 17:25 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.53** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/11/15 17:25 | 193-39-5 | |
| 2-Methylnaphthalene | ND | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/11/15 17:25 | 91-57-6 | |
| Naphthalene | ND | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/11/15 17:25 | 91-20-3 | 1d |
| Phenanthrene | **0.36** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/11/15 17:25 | 85-01-8 | |
| Pyrene | **2.6** | mg/kg | 0.030 | 5 | 12/07/15 11:25 | 12/11/15 17:25 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 65 | %. | 38-110 | 5 | 12/07/15 11:25 | 12/11/15 17:25 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 81 | %. | 32-111 | 5 | 12/07/15 11:25 | 12/11/15 17:25 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **17.5** | % | 0.10 | 1 | | 12/07/15 08:42 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: TCLP-3:0-0.5** **Lab ID: 50133848014** Collected: 12/03/15 16:05 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP, TCLP** | Analytical Method: EPA 6010 Preparation Method: EPA 3010<br>Leachate Method/Date: EPA 1311; 12/07/15 15:50 | | | | | | | |
| Arsenic | **0.38** | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:38 | 7440-38-2 | |
| Barium | ND | mg/L | 5.0 | 1 | 12/08/15 17:08 | 12/09/15 02:38 | 7440-39-3 | |
| Cadmium | ND | mg/L | 0.050 | 1 | 12/08/15 17:08 | 12/09/15 02:38 | 7440-43-9 | |
| Chromium | ND | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:38 | 7440-47-3 | |
| Lead | **168** | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:38 | 7439-92-1 | |
| Selenium | ND | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:38 | 7782-49-2 | |
| Silver | ND | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:38 | 7440-22-4 | |
| **7470 Mercury, TCLP** | Analytical Method: EPA 7470 Preparation Method: EPA 7470<br>Leachate Method/Date: EPA 1311; 12/07/15 15:50 | | | | | | | |
| Mercury | ND | mg/L | 0.0020 | 1 | 12/10/15 21:58 | 12/11/15 09:39 | 7439-97-6 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:42 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:42 | 208-96-8 | |
| Anthracene | **0.12** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:42 | 120-12-7 | |
| Benzo(a)anthracene | **3.3** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:42 | 56-55-3 | |
| Benzo(a)pyrene | **3.0** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:42 | 50-32-8 | |
| Benzo(b)fluoranthene | **1.8** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:42 | 205-99-2 | |
| Benzo(g,h,i)perylene | **1.6** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:42 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.85** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:42 | 207-08-9 | |
| Chrysene | **5.8** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:42 | 218-01-9 | C0,IS |
| Dibenz(a,h)anthracene | **0.87** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:42 | 53-70-3 | |
| Fluoranthene | **0.70** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:42 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:42 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.85** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:42 | 193-39-5 | |
| 2-Methylnaphthalene | ND | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:42 | 91-57-6 | |
| Naphthalene | **0.063** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:42 | 91-20-3 | 1d |
| Phenanthrene | **0.51** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:42 | 85-01-8 | |
| Pyrene | **2.5** | mg/kg | 0.032 | 5 | 12/07/15 11:25 | 12/11/15 17:42 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 64 | %. | 38-110 | 5 | 12/07/15 11:25 | 12/11/15 17:42 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 75 | %. | 32-111 | 5 | 12/07/15 11:25 | 12/11/15 17:42 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **21.8** | % | 0.10 | 1 | | 12/07/15 08:43 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: TCLP-4:0-0.5** **Lab ID: 50133848015** Collected: 12/03/15 16:10 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP, TCLP** | Analytical Method: EPA 6010 Preparation Method: EPA 3010<br>Leachate Method/Date: EPA 1311; 12/07/15 15:50 | | | | | | | |
| Arsenic | ND | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:40 | 7440-38-2 | |
| Barium | ND | mg/L | 5.0 | 1 | 12/08/15 17:08 | 12/09/15 02:40 | 7440-39-3 | |
| Cadmium | ND | mg/L | 0.050 | 1 | 12/08/15 17:08 | 12/09/15 02:40 | 7440-43-9 | |
| Chromium | ND | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:40 | 7440-47-3 | |
| Lead | **3.0** | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:40 | 7439-92-1 | |
| Selenium | ND | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:40 | 7782-49-2 | |
| Silver | ND | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:40 | 7440-22-4 | |
| **7470 Mercury, TCLP** | Analytical Method: EPA 7470 Preparation Method: EPA 7470<br>Leachate Method/Date: EPA 1311; 12/07/15 15:50 | | | | | | | |
| Mercury | ND | mg/L | 0.0020 | 1 | 12/10/15 21:58 | 12/11/15 09:41 | 7439-97-6 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | **0.043** | mg/kg | 0.042 | 5 | 12/07/15 11:25 | 12/11/15 18:00 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.042 | 5 | 12/07/15 11:25 | 12/11/15 18:00 | 208-96-8 | |
| Anthracene | **0.23** | mg/kg | 0.042 | 5 | 12/07/15 11:25 | 12/11/15 18:00 | 120-12-7 | |
| Benzo(a)anthracene | **7.6** | mg/kg | 0.042 | 5 | 12/07/15 11:25 | 12/11/15 18:00 | 56-55-3 | |
| Benzo(a)pyrene | **5.5** | mg/kg | 0.042 | 5 | 12/07/15 11:25 | 12/11/15 18:00 | 50-32-8 | |
| Benzo(b)fluoranthene | **2.8** | mg/kg | 0.042 | 5 | 12/07/15 11:25 | 12/11/15 18:00 | 205-99-2 | |
| Benzo(g,h,i)perylene | **2.7** | mg/kg | 0.042 | 5 | 12/07/15 11:25 | 12/11/15 18:00 | 191-24-2 | |
| Benzo(k)fluoranthene | **1.0** | mg/kg | 0.042 | 5 | 12/07/15 11:25 | 12/11/15 18:00 | 207-08-9 | |
| Chrysene | **13.8** | mg/kg | 0.042 | 5 | 12/07/15 11:25 | 12/11/15 18:00 | 218-01-9 | C0,IS |
| Dibenz(a,h)anthracene | **1.5** | mg/kg | 0.042 | 5 | 12/07/15 11:25 | 12/11/15 18:00 | 53-70-3 | |
| Fluoranthene | **0.90** | mg/kg | 0.042 | 5 | 12/07/15 11:25 | 12/11/15 18:00 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.042 | 5 | 12/07/15 11:25 | 12/11/15 18:00 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **1.1** | mg/kg | 0.042 | 5 | 12/07/15 11:25 | 12/11/15 18:00 | 193-39-5 | |
| 2-Methylnaphthalene | **0.045** | mg/kg | 0.042 | 5 | 12/07/15 11:25 | 12/11/15 18:00 | 91-57-6 | |
| Naphthalene | ND | mg/kg | 0.042 | 5 | 12/07/15 11:25 | 12/11/15 18:00 | 91-20-3 | 1d |
| Phenanthrene | **1.1** | mg/kg | 0.042 | 5 | 12/07/15 11:25 | 12/11/15 18:00 | 85-01-8 | |
| Pyrene | **4.9** | mg/kg | 0.042 | 5 | 12/07/15 11:25 | 12/11/15 18:00 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 61 | %. | 38-110 | 5 | 12/07/15 11:25 | 12/11/15 18:00 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 73 | %. | 32-111 | 5 | 12/07/15 11:25 | 12/11/15 18:00 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **40.7** | % | 0.10 | 1 | | 12/07/15 08:43 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: TCLP-5:0-0.5** **Lab ID: 50133848016** Collected: 12/03/15 16:15 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP, TCLP** | Analytical Method: EPA 6010 Preparation Method: EPA 3010<br>Leachate Method/Date: EPA 1311; 12/07/15 15:50 | | | | | | | |
| Arsenic | **0.16** | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:43 | 7440-38-2 | |
| Barium | ND | mg/L | 5.0 | 1 | 12/08/15 17:08 | 12/09/15 02:43 | 7440-39-3 | |
| Cadmium | ND | mg/L | 0.050 | 1 | 12/08/15 17:08 | 12/09/15 02:43 | 7440-43-9 | |
| Chromium | ND | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:43 | 7440-47-3 | |
| Lead | **30.6** | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:43 | 7439-92-1 | |
| Selenium | ND | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:43 | 7782-49-2 | |
| Silver | ND | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:43 | 7440-22-4 | |
| **7470 Mercury, TCLP** | Analytical Method: EPA 7470 Preparation Method: EPA 7470<br>Leachate Method/Date: EPA 1311; 12/07/15 15:50 | | | | | | | |
| Mercury | ND | mg/L | 0.0020 | 1 | 12/10/15 21:58 | 12/11/15 09:43 | 7439-97-6 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 1.1 | 200 | 12/07/15 11:25 | 12/11/15 18:17 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 1.1 | 200 | 12/07/15 11:25 | 12/11/15 18:17 | 208-96-8 | |
| Anthracene | **1.2** | mg/kg | 1.1 | 200 | 12/07/15 11:25 | 12/11/15 18:17 | 120-12-7 | |
| Benzo(a)anthracene | **62.4** | mg/kg | 1.1 | 200 | 12/07/15 11:25 | 12/11/15 18:17 | 56-55-3 | |
| Benzo(a)pyrene | **45.6** | mg/kg | 1.1 | 200 | 12/07/15 11:25 | 12/11/15 18:17 | 50-32-8 | |
| Benzo(b)fluoranthene | **23.2** | mg/kg | 1.1 | 200 | 12/07/15 11:25 | 12/11/15 18:17 | 205-99-2 | |
| Benzo(g,h,i)perylene | **22.7** | mg/kg | 1.1 | 200 | 12/07/15 11:25 | 12/11/15 18:17 | 191-24-2 | |
| Benzo(k)fluoranthene | **6.0** | mg/kg | 1.1 | 200 | 12/07/15 11:25 | 12/11/15 18:17 | 207-08-9 | |
| Chrysene | **106** | mg/kg | 1.1 | 200 | 12/07/15 11:25 | 12/11/15 18:17 | 218-01-9 | C0,IS |
| Dibenz(a,h)anthracene | **14.7** | mg/kg | 1.1 | 200 | 12/07/15 11:25 | 12/11/15 18:17 | 53-70-3 | |
| Fluoranthene | **4.6** | mg/kg | 1.1 | 200 | 12/07/15 11:25 | 12/11/15 18:17 | 206-44-0 | |
| Fluorene | ND | mg/kg | 1.1 | 200 | 12/07/15 11:25 | 12/11/15 18:17 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **8.2** | mg/kg | 1.1 | 200 | 12/07/15 11:25 | 12/11/15 18:17 | 193-39-5 | |
| 2-Methylnaphthalene | ND | mg/kg | 1.1 | 200 | 12/07/15 11:25 | 12/11/15 18:17 | 91-57-6 | |
| Naphthalene | ND | mg/kg | 1.1 | 200 | 12/07/15 11:25 | 12/11/15 18:17 | 91-20-3 | D3 |
| Phenanthrene | **6.2** | mg/kg | 1.1 | 200 | 12/07/15 11:25 | 12/11/15 18:17 | 85-01-8 | |
| Pyrene | **39.1** | mg/kg | 1.1 | 200 | 12/07/15 11:25 | 12/11/15 18:17 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 0 | %. | 38-110 | 200 | 12/07/15 11:25 | 12/11/15 18:17 | 321-60-8 | S4 |
| p-Terphenyl-d14 (S) | 0 | %. | 32-111 | 200 | 12/07/15 11:25 | 12/11/15 18:17 | 1718-51-0 | S4 |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **12.0** | % | 0.10 | 1 | | 12/07/15 08:43 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: TCLP-6:0-0.5** **Lab ID: 50133848017** Collected: 12/03/15 16:30 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP, TCLP** | Analytical Method: EPA 6010 Preparation Method: EPA 3010<br>Leachate Method/Date: EPA 1311; 12/07/15 15:50 | | | | | | | |
| Arsenic | ND | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:45 | 7440-38-2 | |
| Barium | ND | mg/L | 5.0 | 1 | 12/08/15 17:08 | 12/09/15 02:45 | 7440-39-3 | |
| Cadmium | ND | mg/L | 0.050 | 1 | 12/08/15 17:08 | 12/09/15 02:45 | 7440-43-9 | |
| Chromium | ND | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:45 | 7440-47-3 | |
| Lead | **0.66** | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:45 | 7439-92-1 | |
| Selenium | ND | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:45 | 7782-49-2 | |
| Silver | ND | mg/L | 0.10 | 1 | 12/08/15 17:08 | 12/09/15 02:45 | 7440-22-4 | |
| **7470 Mercury, TCLP** | Analytical Method: EPA 7470 Preparation Method: EPA 7470<br>Leachate Method/Date: EPA 1311; 12/07/15 15:50 | | | | | | | |
| Mercury | ND | mg/L | 0.0020 | 1 | 12/10/15 21:58 | 12/11/15 09:45 | 7439-97-6 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | **0.17** | mg/kg | 0.033 | 5 | 12/07/15 11:25 | 12/11/15 18:35 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.033 | 5 | 12/07/15 11:25 | 12/11/15 18:35 | 208-96-8 | |
| Anthracene | **0.35** | mg/kg | 0.033 | 5 | 12/07/15 11:25 | 12/11/15 18:35 | 120-12-7 | |
| Benzo(a)anthracene | **6.0** | mg/kg | 0.033 | 5 | 12/07/15 11:25 | 12/11/15 18:35 | 56-55-3 | |
| Benzo(a)pyrene | **5.0** | mg/kg | 0.033 | 5 | 12/07/15 11:25 | 12/11/15 18:35 | 50-32-8 | |
| Benzo(b)fluoranthene | **3.3** | mg/kg | 0.033 | 5 | 12/07/15 11:25 | 12/11/15 18:35 | 205-99-2 | |
| Benzo(g,h,i)perylene | **2.6** | mg/kg | 0.033 | 5 | 12/07/15 11:25 | 12/11/15 18:35 | 191-24-2 | |
| Benzo(k)fluoranthene | **1.0** | mg/kg | 0.033 | 5 | 12/07/15 11:25 | 12/11/15 18:35 | 207-08-9 | |
| Chrysene | **10.8** | mg/kg | 0.033 | 5 | 12/07/15 11:25 | 12/11/15 18:35 | 218-01-9 | |
| Dibenz(a,h)anthracene | **1.8** | mg/kg | 0.033 | 5 | 12/07/15 11:25 | 12/11/15 18:35 | 53-70-3 | |
| Fluoranthene | **1.7** | mg/kg | 0.033 | 5 | 12/07/15 11:25 | 12/11/15 18:35 | 206-44-0 | |
| Fluorene | **0.11** | mg/kg | 0.033 | 5 | 12/07/15 11:25 | 12/11/15 18:35 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **1.5** | mg/kg | 0.033 | 5 | 12/07/15 11:25 | 12/11/15 18:35 | 193-39-5 | |
| 2-Methylnaphthalene | **0.059** | mg/kg | 0.033 | 5 | 12/07/15 11:25 | 12/11/15 18:35 | 91-57-6 | |
| Naphthalene | **0.046** | mg/kg | 0.033 | 5 | 12/07/15 11:25 | 12/11/15 18:35 | 91-20-3 | 1d,C0,IS |
| Phenanthrene | **1.5** | mg/kg | 0.033 | 5 | 12/07/15 11:25 | 12/11/15 18:35 | 85-01-8 | |
| Pyrene | **4.7** | mg/kg | 0.033 | 5 | 12/07/15 11:25 | 12/11/15 18:35 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 60 | %. | 38-110 | 5 | 12/07/15 11:25 | 12/11/15 18:35 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 71 | %. | 32-111 | 5 | 12/07/15 11:25 | 12/11/15 18:35 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **23.1** | % | 0.10 | 1 | | 12/07/15 08:43 | | |

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: EB-1** **Lab ID: 50133848018** Collected: 12/04/15 11:55 Received: 12/05/15 09:10 Matrix: Water

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3010 | | | | | | | |
| Antimony | ND | ug/L | 6.0 | 1 | 12/09/15 06:57 | 12/10/15 13:54 | 7440-36-0 | |
| Arsenic | ND | ug/L | 10.0 | 1 | 12/09/15 06:57 | 12/10/15 13:54 | 7440-38-2 | |
| Lead | ND | ug/L | 10.0 | 1 | 12/09/15 06:57 | 12/10/15 13:54 | 7439-92-1 | |
| Nickel | ND | ug/L | 10.0 | 1 | 12/09/15 06:57 | 12/10/15 13:54 | 7440-02-0 | |
| **8270 MSSV PAHLV** | Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510 | | | | | | | |
| Acenaphthene | ND | ug/L | 1.0 | 1 | 12/07/15 10:38 | 12/09/15 15:43 | 83-32-9 | |
| Acenaphthylene | ND | ug/L | 1.0 | 1 | 12/07/15 10:38 | 12/09/15 15:43 | 208-96-8 | |
| Anthracene | ND | ug/L | 0.10 | 1 | 12/07/15 10:38 | 12/09/15 15:43 | 120-12-7 | |
| Benzo(a)anthracene | ND | ug/L | 0.10 | 1 | 12/07/15 10:38 | 12/09/15 15:43 | 56-55-3 | |
| Benzo(a)pyrene | ND | ug/L | 0.10 | 1 | 12/07/15 10:38 | 12/09/15 15:43 | 50-32-8 | |
| Benzo(b)fluoranthene | ND | ug/L | 0.10 | 1 | 12/07/15 10:38 | 12/09/15 15:43 | 205-99-2 | |
| Benzo(g,h,i)perylene | ND | ug/L | 0.10 | 1 | 12/07/15 10:38 | 12/09/15 15:43 | 191-24-2 | |
| Benzo(k)fluoranthene | ND | ug/L | 0.10 | 1 | 12/07/15 10:38 | 12/09/15 15:43 | 207-08-9 | |
| Chrysene | ND | ug/L | 0.50 | 1 | 12/07/15 10:38 | 12/09/15 15:43 | 218-01-9 | |
| Dibenz(a,h)anthracene | ND | ug/L | 0.092 | 1 | 12/07/15 10:38 | 12/09/15 15:43 | 53-70-3 | |
| Fluoranthene | ND | ug/L | 1.0 | 1 | 12/07/15 10:38 | 12/09/15 15:43 | 206-44-0 | |
| Fluorene | ND | ug/L | 1.0 | 1 | 12/07/15 10:38 | 12/09/15 15:43 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | ND | ug/L | 0.10 | 1 | 12/07/15 10:38 | 12/09/15 15:43 | 193-39-5 | |
| 2-Methylnaphthalene | ND | ug/L | 1.0 | 1 | 12/07/15 10:38 | 12/09/15 15:43 | 91-57-6 | |
| Naphthalene | ND | ug/L | 1.0 | 1 | 12/07/15 10:38 | 12/09/15 15:43 | 91-20-3 | |
| Phenanthrene | ND | ug/L | 1.0 | 1 | 12/07/15 10:38 | 12/09/15 15:43 | 85-01-8 | |
| Pyrene | ND | ug/L | 1.0 | 1 | 12/07/15 10:38 | 12/09/15 15:43 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 58 | %. | 21-114 | 1 | 12/07/15 10:38 | 12/09/15 15:43 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 87 | %. | 25-131 | 1 | 12/07/15 10:38 | 12/09/15 15:43 | 1718-51-0 | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: EB-2** **Lab ID: 50133848019** Collected: 12/04/15 12:00 Received: 12/05/15 09:10 Matrix: Water

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3010 | | | | | | | |
| Antimony | ND | ug/L | 6.0 | 1 | 12/09/15 06:57 | 12/10/15 13:56 | 7440-36-0 | |
| Arsenic | ND | ug/L | 10.0 | 1 | 12/09/15 06:57 | 12/10/15 13:56 | 7440-38-2 | |
| Lead | ND | ug/L | 10.0 | 1 | 12/09/15 06:57 | 12/10/15 13:56 | 7439-92-1 | |
| Nickel | ND | ug/L | 10.0 | 1 | 12/09/15 06:57 | 12/10/15 13:56 | 7440-02-0 | |
| **8270 MSSV PAHLV** | Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510 | | | | | | | |
| Acenaphthene | ND | ug/L | 1.0 | 1 | 12/07/15 10:38 | 12/09/15 15:56 | 83-32-9 | |
| Acenaphthylene | ND | ug/L | 1.0 | 1 | 12/07/15 10:38 | 12/09/15 15:56 | 208-96-8 | |
| Anthracene | ND | ug/L | 0.10 | 1 | 12/07/15 10:38 | 12/09/15 15:56 | 120-12-7 | |
| Benzo(a)anthracene | ND | ug/L | 0.10 | 1 | 12/07/15 10:38 | 12/09/15 15:56 | 56-55-3 | |
| Benzo(a)pyrene | ND | ug/L | 0.10 | 1 | 12/07/15 10:38 | 12/09/15 15:56 | 50-32-8 | |
| Benzo(b)fluoranthene | ND | ug/L | 0.10 | 1 | 12/07/15 10:38 | 12/09/15 15:56 | 205-99-2 | |
| Benzo(g,h,i)perylene | ND | ug/L | 0.10 | 1 | 12/07/15 10:38 | 12/09/15 15:56 | 191-24-2 | |
| Benzo(k)fluoranthene | ND | ug/L | 0.10 | 1 | 12/07/15 10:38 | 12/09/15 15:56 | 207-08-9 | |
| Chrysene | ND | ug/L | 0.50 | 1 | 12/07/15 10:38 | 12/09/15 15:56 | 218-01-9 | |
| Dibenz(a,h)anthracene | ND | ug/L | 0.092 | 1 | 12/07/15 10:38 | 12/09/15 15:56 | 53-70-3 | |
| Fluoranthene | ND | ug/L | 1.0 | 1 | 12/07/15 10:38 | 12/09/15 15:56 | 206-44-0 | |
| Fluorene | ND | ug/L | 1.0 | 1 | 12/07/15 10:38 | 12/09/15 15:56 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | ND | ug/L | 0.10 | 1 | 12/07/15 10:38 | 12/09/15 15:56 | 193-39-5 | |
| 2-Methylnaphthalene | ND | ug/L | 1.0 | 1 | 12/07/15 10:38 | 12/09/15 15:56 | 91-57-6 | |
| Naphthalene | ND | ug/L | 1.0 | 1 | 12/07/15 10:38 | 12/09/15 15:56 | 91-20-3 | |
| Phenanthrene | ND | ug/L | 1.0 | 1 | 12/07/15 10:38 | 12/09/15 15:56 | 85-01-8 | |
| Pyrene | ND | ug/L | 1.0 | 1 | 12/07/15 10:38 | 12/09/15 15:56 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 77 | %. | 21-114 | 1 | 12/07/15 10:38 | 12/09/15 15:56 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 95 | %. | 25-131 | 1 | 12/07/15 10:38 | 12/09/15 15:56 | 1718-51-0 | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-1:0-2** **Lab ID: 50133848020** Collected: 12/04/15 09:35 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **20.1** | mg/kg | 1.1 | 1 | 12/07/15 12:30 | 12/08/15 01:47 | 7440-38-2 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **19.3** | % | 0.10 | 1 | | 12/07/15 08:43 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-2:0-2** **Lab ID: 50133848021** Collected: 12/04/15 09:40 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **21.4** | mg/kg | 1.1 | 1 | 12/07/15 12:30 | 12/08/15 01:49 | 7440-38-2 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **19.5** | % | 0.10 | 1 | | 12/07/15 08:43 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-3:0-2** **Lab ID: 50133848022** Collected: 12/04/15 09:45 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **25.7** | mg/kg | 0.96 | 1 | 12/07/15 12:30 | 12/08/15 01:51 | 7440-38-2 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **7.2** | % | 0.10 | 1 | | 12/07/15 08:43 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-4:0-2** **Lab ID: 50133848023** Collected: 12/04/15 10:00 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **19.2** | mg/kg | 1.1 | 1 | 12/07/15 12:30 | 12/08/15 01:53 | 7440-38-2 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **20.5** | % | 0.10 | 1 | | 12/07/15 09:01 | | |

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-5:0-2** **Lab ID: 50133848024** Collected: 12/04/15 09:55 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **13.7** | mg/kg | 1.2 | 1 | 12/07/15 12:30 | 12/08/15 01:55 | 7440-38-2 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **21.9** | % | 0.10 | 1 | | 12/07/15 09:01 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-6:0-2** **Lab ID: 50133848025** Collected: 12/04/15 09:50 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **26.6** | mg/kg | 1.0 | 1 | 12/07/15 12:30 | 12/08/15 02:02 | 7440-38-2 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **14.5** | % | 0.10 | 1 | | 12/07/15 09:01 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-7:0-2** **Lab ID: 50133848026** Collected: 12/04/15 10:05 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **16.4** | mg/kg | 1.2 | 1 | 12/07/15 12:30 | 12/08/15 02:04 | 7440-38-2 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **18.0** | % | 0.10 | 1 | | 12/07/15 09:01 | | |

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, Inc.**
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**Pace Analytical Services, Inc.**
7726 Moller Road
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(317)228-3100

## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-8:0-2** **Lab ID: 50133848027** Collected: 12/04/15 10:10 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **15.0** | mg/kg | 1.2 | 1 | 12/07/15 12:30 | 12/08/15 02:06 | 7440-38-2 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **22.2** | % | 0.10 | 1 | | 12/07/15 09:01 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-9:0-2** **Lab ID: 50133848028** Collected: 12/04/15 10:15 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **11.9** | mg/kg | 1.5 | 1 | 12/07/15 12:30 | 12/08/15 02:09 | 7440-38-2 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **40.1** | % | 0.10 | 1 | | 12/07/15 09:01 | | |

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-10:0-2** **Lab ID: 50133848029** Collected: 12/04/15 10:30 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **14.7** | mg/kg | 1.2 | 1 | 12/09/15 07:07 | 12/09/15 23:36 | 7440-38-2 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **20.3** | % | 0.10 | 1 | | 12/07/15 09:02 | | |

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-11:0-2** **Lab ID: 50133848030** Collected: 12/04/15 10:25 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **16.2** | mg/kg | 1.4 | 1 | 12/09/15 07:07 | 12/09/15 23:54 | 7440-38-2 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **36.0** | % | 0.10 | 1 | | 12/07/15 09:02 | | |

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-12:0-2** **Lab ID: 50133848031** Collected: 12/04/15 10:20 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **17.5** | mg/kg | 1.2 | 1 | 12/09/15 07:07 | 12/09/15 23:56 | 7440-38-2 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **16.2** | % | 0.10 | 1 | | 12/07/15 09:02 | | |

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-13:0-2** **Lab ID: 50133848032** Collected: 12/04/15 10:33 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **15.1** | mg/kg | 1.1 | 1 | 12/09/15 07:07 | 12/09/15 23:58 | 7440-38-2 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **16.1** | % | 0.10 | 1 | | 12/07/15 09:02 | | |

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-14:0-2** **Lab ID: 50133848033** Collected: 12/04/15 10:36 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **25.3** | mg/kg | 1.2 | 1 | 12/09/15 07:07 | 12/10/15 00:00 | 7440-38-2 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **22.5** | % | 0.10 | 1 | | 12/07/15 09:02 | | |

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-15:0-2** **Lab ID: 50133848034** Collected: 12/04/15 10:39 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Arsenic | **8.4** | mg/kg | 1.1 | 1 | 12/09/15 07:07 | 12/10/15 00:03 | 7440-38-2 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **15.2** | % | 0.10 | 1 | | 12/07/15 09:02 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-16:0-1** **Lab ID: 50133848035** Collected: 12/04/15 11:15 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Antimony | **21.4** | mg/kg | 1.1 | 1 | 12/09/15 07:07 | 12/10/15 00:05 | 7440-36-0 | |
| Arsenic | **31.4** | mg/kg | 1.1 | 1 | 12/09/15 07:07 | 12/10/15 00:05 | 7440-38-2 | |
| Lead | **2770** | mg/kg | 1.1 | 1 | 12/09/15 07:07 | 12/10/15 00:05 | 7439-92-1 | |
| Nickel | **11.9** | mg/kg | 1.1 | 1 | 12/09/15 07:07 | 12/10/15 00:05 | 7440-02-0 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/11/15 18:52 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/11/15 18:52 | 208-96-8 | |
| Anthracene | **0.086** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/11/15 18:52 | 120-12-7 | |
| Benzo(a)anthracene | **1.9** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/11/15 18:52 | 56-55-3 | |
| Benzo(a)pyrene | **1.6** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/11/15 18:52 | 50-32-8 | |
| Benzo(b)fluoranthene | **1.0** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/11/15 18:52 | 205-99-2 | |
| Benzo(g,h,i)perylene | **0.91** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/11/15 18:52 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.50** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/11/15 18:52 | 207-08-9 | |
| Chrysene | **3.2** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/11/15 18:52 | 218-01-9 | C0,IS |
| Dibenz(a,h)anthracene | **0.55** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/11/15 18:52 | 53-70-3 | |
| Fluoranthene | **0.47** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/11/15 18:52 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/11/15 18:52 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.47** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/11/15 18:52 | 193-39-5 | |
| 2-Methylnaphthalene | ND | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/11/15 18:52 | 91-57-6 | |
| Naphthalene | ND | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/11/15 18:52 | 91-20-3 | 1d |
| Phenanthrene | **0.37** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/11/15 18:52 | 85-01-8 | |
| Pyrene | **1.4** | mg/kg | 0.031 | 5 | 12/07/15 11:25 | 12/11/15 18:52 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 60 | %. | 38-110 | 5 | 12/07/15 11:25 | 12/11/15 18:52 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 73 | %. | 32-111 | 5 | 12/07/15 11:25 | 12/11/15 18:52 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **19.9** | % | 0.10 | 1 | | 12/07/15 09:02 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-17:0-1** **Lab ID: 50133848036** Collected: 12/04/15 11:20 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Antimony | **3150** | mg/kg | 22.0 | 20 | 12/09/15 07:07 | 12/10/15 00:30 | 7440-36-0 | |
| Arsenic | **841** | mg/kg | 1.1 | 1 | 12/09/15 07:07 | 12/10/15 00:07 | 7440-38-2 | |
| Lead | **70000** | mg/kg | 22.0 | 20 | 12/09/15 07:07 | 12/10/15 00:30 | 7439-92-1 | |
| Nickel | **11.1** | mg/kg | 1.1 | 1 | 12/09/15 07:07 | 12/10/15 00:07 | 7440-02-0 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | **4.9** | mg/kg | 1.2 | 200 | 12/07/15 11:25 | 12/11/15 19:09 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 1.2 | 200 | 12/07/15 11:25 | 12/11/15 19:09 | 208-96-8 | |
| Anthracene | **11.5** | mg/kg | 1.2 | 200 | 12/07/15 11:25 | 12/11/15 19:09 | 120-12-7 | |
| Benzo(a)anthracene | **98.3** | mg/kg | 1.2 | 200 | 12/07/15 11:25 | 12/11/15 19:09 | 56-55-3 | |
| Benzo(a)pyrene | **84.0** | mg/kg | 1.2 | 200 | 12/07/15 11:25 | 12/11/15 19:09 | 50-32-8 | |
| Benzo(b)fluoranthene | **54.0** | mg/kg | 1.2 | 200 | 12/07/15 11:25 | 12/11/15 19:09 | 205-99-2 | |
| Benzo(g,h,i)perylene | **44.9** | mg/kg | 1.2 | 200 | 12/07/15 11:25 | 12/11/15 19:09 | 191-24-2 | |
| Benzo(k)fluoranthene | **26.7** | mg/kg | 1.2 | 200 | 12/07/15 11:25 | 12/11/15 19:09 | 207-08-9 | |
| Chrysene | **151** | mg/kg | 1.2 | 200 | 12/07/15 11:25 | 12/11/15 19:09 | 218-01-9 | C0,IS |
| Dibenz(a,h)anthracene | **23.8** | mg/kg | 1.2 | 200 | 12/07/15 11:25 | 12/11/15 19:09 | 53-70-3 | |
| Fluoranthene | **53.0** | mg/kg | 1.2 | 200 | 12/07/15 11:25 | 12/11/15 19:09 | 206-44-0 | |
| Fluorene | **3.9** | mg/kg | 1.2 | 200 | 12/07/15 11:25 | 12/11/15 19:09 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **31.3** | mg/kg | 1.2 | 200 | 12/07/15 11:25 | 12/11/15 19:09 | 193-39-5 | |
| 2-Methylnaphthalene | ND | mg/kg | 1.2 | 200 | 12/07/15 11:25 | 12/11/15 19:09 | 91-57-6 | |
| Naphthalene | ND | mg/kg | 1.2 | 200 | 12/07/15 11:25 | 12/11/15 19:09 | 91-20-3 | D3 |
| Phenanthrene | **39.6** | mg/kg | 1.2 | 200 | 12/07/15 11:25 | 12/11/15 19:09 | 85-01-8 | |
| Pyrene | **90.6** | mg/kg | 1.2 | 200 | 12/07/15 11:25 | 12/11/15 19:09 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 0 | %. | 38-110 | 200 | 12/07/15 11:25 | 12/11/15 19:09 | 321-60-8 | S4 |
| p-Terphenyl-d14 (S) | 0 | %. | 32-111 | 200 | 12/07/15 11:25 | 12/11/15 19:09 | 1718-51-0 | S4 |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **16.5** | % | 0.10 | 1 | | 12/07/15 09:02 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-18:0-1** **Lab ID: 50133848037** Collected: 12/04/15 11:25 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Antimony | **3.0** | mg/kg | 1.1 | 1 | 12/09/15 07:07 | 12/10/15 00:32 | 7440-36-0 | |
| Arsenic | **11.9** | mg/kg | 1.1 | 1 | 12/09/15 07:07 | 12/10/15 00:32 | 7440-38-2 | |
| Lead | **106** | mg/kg | 1.1 | 1 | 12/09/15 07:07 | 12/10/15 00:32 | 7439-92-1 | |
| Nickel | **16.5** | mg/kg | 1.1 | 1 | 12/09/15 07:07 | 12/10/15 00:32 | 7440-02-0 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | **11.3** | mg/kg | 0.31 | 50 | 12/07/15 11:25 | 12/11/15 19:27 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.31 | 50 | 12/07/15 11:25 | 12/11/15 19:27 | 208-96-8 | |
| Anthracene | **15.1** | mg/kg | 0.31 | 50 | 12/07/15 11:25 | 12/11/15 19:27 | 120-12-7 | |
| Benzo(a)anthracene | **58.9** | mg/kg | 0.31 | 50 | 12/07/15 11:25 | 12/11/15 19:27 | 56-55-3 | |
| Benzo(a)pyrene | **57.4** | mg/kg | 0.31 | 50 | 12/07/15 11:25 | 12/11/15 19:27 | 50-32-8 | |
| Benzo(b)fluoranthene | **59.6** | mg/kg | 0.31 | 50 | 12/07/15 11:25 | 12/11/15 19:27 | 205-99-2 | |
| Benzo(g,h,i)perylene | **37.3** | mg/kg | 0.31 | 50 | 12/07/15 11:25 | 12/11/15 19:27 | 191-24-2 | |
| Benzo(k)fluoranthene | **39.2** | mg/kg | 0.31 | 50 | 12/07/15 11:25 | 12/11/15 19:27 | 207-08-9 | |
| Chrysene | **70.9** | mg/kg | 0.31 | 50 | 12/07/15 11:25 | 12/11/15 19:27 | 218-01-9 | C0,IS |
| Dibenz(a,h)anthracene | **19.6** | mg/kg | 0.31 | 50 | 12/07/15 11:25 | 12/11/15 19:27 | 53-70-3 | |
| Fluoranthene | **71.5** | mg/kg | 0.31 | 50 | 12/07/15 11:25 | 12/11/15 19:27 | 206-44-0 | |
| Fluorene | **8.3** | mg/kg | 0.31 | 50 | 12/07/15 11:25 | 12/11/15 19:27 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **34.0** | mg/kg | 0.31 | 50 | 12/07/15 11:25 | 12/11/15 19:27 | 193-39-5 | |
| 2-Methylnaphthalene | **1.9** | mg/kg | 0.31 | 50 | 12/07/15 11:25 | 12/11/15 19:27 | 91-57-6 | |
| Naphthalene | **2.0** | mg/kg | 0.31 | 50 | 12/07/15 11:25 | 12/11/15 19:27 | 91-20-3 | D3 |
| Phenanthrene | **58.4** | mg/kg | 0.31 | 50 | 12/07/15 11:25 | 12/11/15 19:27 | 85-01-8 | |
| Pyrene | **79.7** | mg/kg | 0.31 | 50 | 12/07/15 11:25 | 12/11/15 19:27 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 55 | %. | 38-110 | 50 | 12/07/15 11:25 | 12/11/15 19:27 | 321-60-8 | S4 |
| p-Terphenyl-d14 (S) | 73 | %. | 32-111 | 50 | 12/07/15 11:25 | 12/11/15 19:27 | 1718-51-0 | S4 |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **19.5** | % | 0.10 | 1 | | 12/07/15 09:03 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-18A:0-1** **Lab ID: 50133848038** Collected: 12/04/15 11:27 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Antimony | **2.0** | mg/kg | 1.2 | 1 | 12/09/15 07:07 | 12/10/15 00:35 | 7440-36-0 | |
| Arsenic | **13.2** | mg/kg | 1.2 | 1 | 12/09/15 07:07 | 12/10/15 00:35 | 7440-38-2 | |
| Lead | **71.9** | mg/kg | 1.2 | 1 | 12/09/15 07:07 | 12/10/15 00:35 | 7439-92-1 | |
| Nickel | **20.4** | mg/kg | 1.2 | 1 | 12/09/15 07:07 | 12/10/15 00:35 | 7440-02-0 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | **0.56** | mg/kg | 0.32 | 50 | 12/07/15 11:25 | 12/11/15 19:44 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.32 | 50 | 12/07/15 11:25 | 12/11/15 19:44 | 208-96-8 | |
| Anthracene | **1.1** | mg/kg | 0.32 | 50 | 12/07/15 11:25 | 12/11/15 19:44 | 120-12-7 | |
| Benzo(a)anthracene | **14.3** | mg/kg | 0.32 | 50 | 12/07/15 11:25 | 12/11/15 19:44 | 56-55-3 | |
| Benzo(a)pyrene | **14.0** | mg/kg | 0.32 | 50 | 12/07/15 11:25 | 12/11/15 19:44 | 50-32-8 | |
| Benzo(b)fluoranthene | **12.1** | mg/kg | 0.32 | 50 | 12/07/15 11:25 | 12/11/15 19:44 | 205-99-2 | |
| Benzo(g,h,i)perylene | **9.0** | mg/kg | 0.32 | 50 | 12/07/15 11:25 | 12/11/15 19:44 | 191-24-2 | |
| Benzo(k)fluoranthene | **6.8** | mg/kg | 0.32 | 50 | 12/07/15 11:25 | 12/11/15 19:44 | 207-08-9 | |
| Chrysene | **23.7** | mg/kg | 0.32 | 50 | 12/07/15 11:25 | 12/11/15 19:44 | 218-01-9 | C0,IS |
| Dibenz(a,h)anthracene | **4.3** | mg/kg | 0.32 | 50 | 12/07/15 11:25 | 12/11/15 19:44 | 53-70-3 | |
| Fluoranthene | **8.2** | mg/kg | 0.32 | 50 | 12/07/15 11:25 | 12/11/15 19:44 | 206-44-0 | |
| Fluorene | **0.39** | mg/kg | 0.32 | 50 | 12/07/15 11:25 | 12/11/15 19:44 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **6.5** | mg/kg | 0.32 | 50 | 12/07/15 11:25 | 12/11/15 19:44 | 193-39-5 | |
| 2-Methylnaphthalene | **0.79** | mg/kg | 0.32 | 50 | 12/07/15 11:25 | 12/11/15 19:44 | 91-57-6 | |
| Naphthalene | ND | mg/kg | 0.32 | 50 | 12/07/15 11:25 | 12/11/15 19:44 | 91-20-3 | D3 |
| Phenanthrene | **4.5** | mg/kg | 0.32 | 50 | 12/07/15 11:25 | 12/11/15 19:44 | 85-01-8 | |
| Pyrene | **10.9** | mg/kg | 0.32 | 50 | 12/07/15 11:25 | 12/11/15 19:44 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 63 | %. | 38-110 | 50 | 12/07/15 11:25 | 12/11/15 19:44 | 321-60-8 | S4 |
| p-Terphenyl-d14 (S) | 73 | %. | 32-111 | 50 | 12/07/15 11:25 | 12/11/15 19:44 | 1718-51-0 | S4 |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **22.4** | % | 0.10 | 1 | | 12/07/15 09:03 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-19:0-1** **Lab ID: 50133848039** Collected: 12/04/15 11:35 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Antimony | **12.2** | mg/kg | 1.2 | 1 | 12/09/15 07:07 | 12/10/15 00:37 | 7440-36-0 | |
| Arsenic | **24.2** | mg/kg | 1.2 | 1 | 12/09/15 07:07 | 12/10/15 00:37 | 7440-38-2 | |
| Lead | **1380** | mg/kg | 1.2 | 1 | 12/09/15 07:07 | 12/10/15 00:37 | 7439-92-1 | |
| Nickel | **17.7** | mg/kg | 1.2 | 1 | 12/09/15 07:07 | 12/10/15 00:37 | 7440-02-0 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.34 | 50 | 12/07/15 11:25 | 12/11/15 20:02 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.34 | 50 | 12/07/15 11:25 | 12/11/15 20:02 | 208-96-8 | |
| Anthracene | **0.50** | mg/kg | 0.34 | 50 | 12/07/15 11:25 | 12/11/15 20:02 | 120-12-7 | |
| Benzo(a)anthracene | **20.8** | mg/kg | 0.34 | 50 | 12/07/15 11:25 | 12/11/15 20:02 | 56-55-3 | |
| Benzo(a)pyrene | **15.7** | mg/kg | 0.34 | 50 | 12/07/15 11:25 | 12/11/15 20:02 | 50-32-8 | |
| Benzo(b)fluoranthene | **7.1** | mg/kg | 0.34 | 50 | 12/07/15 11:25 | 12/11/15 20:02 | 205-99-2 | |
| Benzo(g,h,i)perylene | **7.5** | mg/kg | 0.34 | 50 | 12/07/15 11:25 | 12/11/15 20:02 | 191-24-2 | |
| Benzo(k)fluoranthene | **1.8** | mg/kg | 0.34 | 50 | 12/07/15 11:25 | 12/11/15 20:02 | 207-08-9 | |
| Chrysene | **35.0** | mg/kg | 0.34 | 50 | 12/07/15 11:25 | 12/11/15 20:02 | 218-01-9 | C0,IS |
| Dibenz(a,h)anthracene | **4.3** | mg/kg | 0.34 | 50 | 12/07/15 11:25 | 12/11/15 20:02 | 53-70-3 | |
| Fluoranthene | **1.6** | mg/kg | 0.34 | 50 | 12/07/15 11:25 | 12/11/15 20:02 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.34 | 50 | 12/07/15 11:25 | 12/11/15 20:02 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **2.8** | mg/kg | 0.34 | 50 | 12/07/15 11:25 | 12/11/15 20:02 | 193-39-5 | |
| 2-Methylnaphthalene | ND | mg/kg | 0.34 | 50 | 12/07/15 11:25 | 12/11/15 20:02 | 91-57-6 | |
| Naphthalene | ND | mg/kg | 0.34 | 50 | 12/07/15 11:25 | 12/11/15 20:02 | 91-20-3 | D3 |
| Phenanthrene | **2.3** | mg/kg | 0.34 | 50 | 12/07/15 11:25 | 12/11/15 20:02 | 85-01-8 | |
| Pyrene | **12.3** | mg/kg | 0.34 | 50 | 12/07/15 11:25 | 12/11/15 20:02 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 36 | %. | 38-110 | 50 | 12/07/15 11:25 | 12/11/15 20:02 | 321-60-8 | S4 |
| p-Terphenyl-d14 (S) | 40 | %. | 32-111 | 50 | 12/07/15 11:25 | 12/11/15 20:02 | 1718-51-0 | S4 |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **26.2** | % | 0.10 | 1 | | 12/07/15 09:03 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-20:0-1** **Lab ID: 50133848040** Collected: 12/04/15 10:45 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Antimony | **1.3** | mg/kg | 1.3 | 1 | 12/09/15 07:07 | 12/10/15 00:39 | 7440-36-0 | |
| Arsenic | **15.1** | mg/kg | 1.3 | 1 | 12/09/15 07:07 | 12/10/15 00:39 | 7440-38-2 | |
| Lead | **18.8** | mg/kg | 1.3 | 1 | 12/09/15 07:07 | 12/10/15 00:39 | 7439-92-1 | |
| Nickel | **18.2** | mg/kg | 1.3 | 1 | 12/09/15 07:07 | 12/10/15 00:39 | 7440-02-0 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.0068 | 1 | 12/07/15 11:25 | 12/11/15 20:19 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.0068 | 1 | 12/07/15 11:25 | 12/11/15 20:19 | 208-96-8 | |
| Anthracene | ND | mg/kg | 0.0068 | 1 | 12/07/15 11:25 | 12/11/15 20:19 | 120-12-7 | |
| Benzo(a)anthracene | **0.016** | mg/kg | 0.0068 | 1 | 12/07/15 11:25 | 12/11/15 20:19 | 56-55-3 | |
| Benzo(a)pyrene | **0.016** | mg/kg | 0.0068 | 1 | 12/07/15 11:25 | 12/11/15 20:19 | 50-32-8 | |
| Benzo(b)fluoranthene | **0.018** | mg/kg | 0.0068 | 1 | 12/07/15 11:25 | 12/11/15 20:19 | 205-99-2 | |
| Benzo(g,h,i)perylene | **0.011** | mg/kg | 0.0068 | 1 | 12/07/15 11:25 | 12/11/15 20:19 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.014** | mg/kg | 0.0068 | 1 | 12/07/15 11:25 | 12/11/15 20:19 | 207-08-9 | |
| Chrysene | **0.023** | mg/kg | 0.0068 | 1 | 12/07/15 11:25 | 12/11/15 20:19 | 218-01-9 | |
| Dibenz(a,h)anthracene | ND | mg/kg | 0.0068 | 1 | 12/07/15 11:25 | 12/11/15 20:19 | 53-70-3 | |
| Fluoranthene | **0.028** | mg/kg | 0.0068 | 1 | 12/07/15 11:25 | 12/11/15 20:19 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.0068 | 1 | 12/07/15 11:25 | 12/11/15 20:19 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.0091** | mg/kg | 0.0068 | 1 | 12/07/15 11:25 | 12/11/15 20:19 | 193-39-5 | |
| 2-Methylnaphthalene | ND | mg/kg | 0.0068 | 1 | 12/07/15 11:25 | 12/11/15 20:19 | 91-57-6 | |
| Naphthalene | ND | mg/kg | 0.0068 | 1 | 12/07/15 11:25 | 12/11/15 20:19 | 91-20-3 | C0,IS |
| Phenanthrene | **0.013** | mg/kg | 0.0068 | 1 | 12/07/15 11:25 | 12/11/15 20:19 | 85-01-8 | |
| Pyrene | **0.024** | mg/kg | 0.0068 | 1 | 12/07/15 11:25 | 12/11/15 20:19 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 65 | %. | 38-110 | 1 | 12/07/15 11:25 | 12/11/15 20:19 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 66 | %. | 32-111 | 1 | 12/07/15 11:25 | 12/11/15 20:19 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **27.4** | % | 0.10 | 1 | | 12/07/15 09:03 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-21:0-1** **Lab ID: 50133848041** Collected: 12/04/15 10:48 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Antimony | ND | mg/kg | 1.1 | 1 | 12/09/15 07:07 | 12/10/15 00:42 | 7440-36-0 | |
| Arsenic | **13.4** | mg/kg | 1.1 | 1 | 12/09/15 07:07 | 12/10/15 00:42 | 7440-38-2 | |
| Lead | **11.4** | mg/kg | 1.1 | 1 | 12/09/15 07:07 | 12/10/15 00:42 | 7439-92-1 | |
| Nickel | **12.5** | mg/kg | 1.1 | 1 | 12/09/15 07:07 | 12/10/15 00:42 | 7440-02-0 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.0058 | 1 | 12/07/15 11:25 | 12/11/15 20:36 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.0058 | 1 | 12/07/15 11:25 | 12/11/15 20:36 | 208-96-8 | |
| Anthracene | ND | mg/kg | 0.0058 | 1 | 12/07/15 11:25 | 12/11/15 20:36 | 120-12-7 | |
| Benzo(a)anthracene | **0.015** | mg/kg | 0.0058 | 1 | 12/07/15 11:25 | 12/11/15 20:36 | 56-55-3 | |
| Benzo(a)pyrene | **0.019** | mg/kg | 0.0058 | 1 | 12/07/15 11:25 | 12/11/15 20:36 | 50-32-8 | |
| Benzo(b)fluoranthene | **0.020** | mg/kg | 0.0058 | 1 | 12/07/15 11:25 | 12/11/15 20:36 | 205-99-2 | |
| Benzo(g,h,i)perylene | **0.013** | mg/kg | 0.0058 | 1 | 12/07/15 11:25 | 12/11/15 20:36 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.016** | mg/kg | 0.0058 | 1 | 12/07/15 11:25 | 12/11/15 20:36 | 207-08-9 | |
| Chrysene | **0.022** | mg/kg | 0.0058 | 1 | 12/07/15 11:25 | 12/11/15 20:36 | 218-01-9 | |
| Dibenz(a,h)anthracene | ND | mg/kg | 0.0058 | 1 | 12/07/15 11:25 | 12/11/15 20:36 | 53-70-3 | |
| Fluoranthene | **0.018** | mg/kg | 0.0058 | 1 | 12/07/15 11:25 | 12/11/15 20:36 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.0058 | 1 | 12/07/15 11:25 | 12/11/15 20:36 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.012** | mg/kg | 0.0058 | 1 | 12/07/15 11:25 | 12/11/15 20:36 | 193-39-5 | |
| 2-Methylnaphthalene | ND | mg/kg | 0.0058 | 1 | 12/07/15 11:25 | 12/11/15 20:36 | 91-57-6 | |
| Naphthalene | ND | mg/kg | 0.0058 | 1 | 12/07/15 11:25 | 12/11/15 20:36 | 91-20-3 | |
| Phenanthrene | **0.0069** | mg/kg | 0.0058 | 1 | 12/07/15 11:25 | 12/11/15 20:36 | 85-01-8 | |
| Pyrene | **0.018** | mg/kg | 0.0058 | 1 | 12/07/15 11:25 | 12/11/15 20:36 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 65 | %. | 38-110 | 1 | 12/07/15 11:25 | 12/11/15 20:36 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 67 | %. | 32-111 | 1 | 12/07/15 11:25 | 12/11/15 20:36 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **15.0** | % | 0.10 | 1 | | 12/07/15 09:03 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-22:0-1** **Lab ID: 50133848042** Collected: 12/04/15 10:42 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Antimony | ND | mg/kg | 1.0 | 1 | 12/09/15 07:07 | 12/10/15 00:44 | 7440-36-0 | |
| Arsenic | **11.0** | mg/kg | 1.0 | 1 | 12/09/15 07:07 | 12/10/15 00:44 | 7440-38-2 | |
| Lead | **47.4** | mg/kg | 1.0 | 1 | 12/09/15 07:07 | 12/10/15 00:44 | 7439-92-1 | |
| Nickel | **9.4** | mg/kg | 1.0 | 1 | 12/09/15 07:07 | 12/10/15 00:44 | 7440-02-0 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/11/15 20:54 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/11/15 20:54 | 208-96-8 | |
| Anthracene | ND | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/11/15 20:54 | 120-12-7 | |
| Benzo(a)anthracene | **0.030** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/11/15 20:54 | 56-55-3 | |
| Benzo(a)pyrene | **0.040** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/11/15 20:54 | 50-32-8 | |
| Benzo(b)fluoranthene | **0.041** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/11/15 20:54 | 205-99-2 | |
| Benzo(g,h,i)perylene | **0.027** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/11/15 20:54 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.033** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/11/15 20:54 | 207-08-9 | |
| Chrysene | **0.039** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/11/15 20:54 | 218-01-9 | |
| Dibenz(a,h)anthracene | **0.011** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/11/15 20:54 | 53-70-3 | |
| Fluoranthene | **0.033** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/11/15 20:54 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/11/15 20:54 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.024** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/11/15 20:54 | 193-39-5 | |
| 2-Methylnaphthalene | ND | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/11/15 20:54 | 91-57-6 | |
| Naphthalene | ND | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/11/15 20:54 | 91-20-3 | |
| Phenanthrene | **0.0080** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/11/15 20:54 | 85-01-8 | |
| Pyrene | **0.034** | mg/kg | 0.0059 | 1 | 12/07/15 11:25 | 12/11/15 20:54 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 60 | %. | 38-110 | 1 | 12/07/15 11:25 | 12/11/15 20:54 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 61 | %. | 32-111 | 1 | 12/07/15 11:25 | 12/11/15 20:54 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **16.2** | % | 0.10 | 1 | | 12/07/15 09:03 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-23:0-1** **Lab ID: 50133848043** Collected: 12/04/15 10:51 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Antimony | **3.0** | mg/kg | 1.1 | 1 | 12/09/15 07:07 | 12/10/15 00:50 | 7440-36-0 | |
| Arsenic | **15.7** | mg/kg | 1.1 | 1 | 12/09/15 07:07 | 12/10/15 00:50 | 7440-38-2 | |
| Lead | **103** | mg/kg | 1.1 | 1 | 12/09/15 07:07 | 12/10/15 00:50 | 7439-92-1 | |
| Nickel | **20.7** | mg/kg | 1.1 | 1 | 12/09/15 07:07 | 12/10/15 00:50 | 7440-02-0 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/11/15 21:12 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/11/15 21:12 | 208-96-8 | |
| Anthracene | ND | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/11/15 21:12 | 120-12-7 | |
| Benzo(a)anthracene | **0.026** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/11/15 21:12 | 56-55-3 | |
| Benzo(a)pyrene | **0.030** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/11/15 21:12 | 50-32-8 | |
| Benzo(b)fluoranthene | **0.025** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/11/15 21:12 | 205-99-2 | |
| Benzo(g,h,i)perylene | **0.022** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/11/15 21:12 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.019** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/11/15 21:12 | 207-08-9 | |
| Chrysene | **0.043** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/11/15 21:12 | 218-01-9 | |
| Dibenz(a,h)anthracene | **0.0093** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/11/15 21:12 | 53-70-3 | |
| Fluoranthene | **0.028** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/11/15 21:12 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/11/15 21:12 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.016** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/11/15 21:12 | 193-39-5 | |
| 2-Methylnaphthalene | ND | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/11/15 21:12 | 91-57-6 | |
| Naphthalene | **0.030** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/11/15 21:12 | 91-20-3 | |
| Phenanthrene | **0.018** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/11/15 21:12 | 85-01-8 | |
| Pyrene | **0.030** | mg/kg | 0.0060 | 1 | 12/07/15 11:25 | 12/11/15 21:12 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 68 | %. | 38-110 | 1 | 12/07/15 11:25 | 12/11/15 21:12 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 73 | %. | 32-111 | 1 | 12/07/15 11:25 | 12/11/15 21:12 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **16.7** | % | 0.10 | 1 | | 12/07/15 09:23 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-24:2-3** **Lab ID: 50133848044** Collected: 12/04/15 10:57 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Lead | **27.7** | mg/kg | 1.1 | 1 | 12/09/15 07:07 | 12/10/15 00:53 | 7439-92-1 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **16.2** | % | 0.10 | 1 | | 12/07/15 09:23 | | |

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-25:2-3** **Lab ID: 50133848045** Collected: 12/04/15 10:54 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Lead | **51.4** | mg/kg | 1.2 | 1 | 12/09/15 07:07 | 12/10/15 00:55 | 7439-92-1 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **17.5** | % | 0.10 | 1 | | 12/07/15 09:23 | | |

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-26:2-3** **Lab ID: 50133848046** Collected: 12/04/15 11:05 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Lead | **15.3** | mg/kg | 1.1 | 1 | 12/09/15 07:07 | 12/10/15 00:57 | 7439-92-1 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **13.9** | % | 0.10 | 1 | | 12/07/15 09:23 | | |

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## ANALYTICAL RESULTS

Project: Mud Run Gun Club
Pace Project No.: 50133848

**Sample: SB-27:2-3** **Lab ID: 50133848047** Collected: 12/04/15 11:10 Received: 12/05/15 09:10 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Lead | **17.0** | mg/kg | 1.2 | 1 | 12/09/15 07:07 | 12/10/15 00:59 | 7439-92-1 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **22.2** | % | 0.10 | 1 | | 12/07/15 09:23 | | |

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: Mud Run Gun Club
Pace Project No.: 50133848

QC Batch: MERP/7221 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury TCLP
Associated Lab Samples: 50133848012, 50133848013, 50133848014, 50133848015, 50133848016, 50133848017

METHOD BLANK: 1441821 Matrix: Water
Associated Lab Samples: 50133848012, 50133848013, 50133848014, 50133848015, 50133848016, 50133848017

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Mercury | mg/L | ND | 0.0020 | 12/11/15 09:28 | |

LABORATORY CONTROL SAMPLE: 1441822

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Mercury | mg/L | .015 | 0.015 | 99 | 80-120 | |

MATRIX SPIKE SAMPLE: 1441823

| Parameter | Units | 50133848012 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Mercury | mg/L | ND | .015 | 0.015 | 97 | 75-125 | |

MATRIX SPIKE SAMPLE: 1441824

| Parameter | Units | 50133529001 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Mercury | mg/L | ND | .015 | 0.014 | 94 | 75-125 | |

MATRIX SPIKE SAMPLE: 1441825

| Parameter | Units | 50134006001 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Mercury | mg/L | ND | .015 | 0.015 | 100 | 75-125 | |

MATRIX SPIKE SAMPLE: 1441831

| Parameter | Units | 50133878008 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Mercury | mg/L | ND | .015 | 0.015 | 95 | 75-125 | |

MATRIX SPIKE SAMPLE: 1441838

| Parameter | Units | 50133844002 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Mercury | mg/L | ND | .015 | 0.015 | 98 | 75-125 | |

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## QUALITY CONTROL DATA

Project: Mud Run Gun Club
Pace Project No.: 50133848

MATRIX SPIKE SAMPLE: 1442709

| Parameter | Units | 50133614001 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Mercury | mg/L | ND | .015 | 0.016 | 106 | 75-125 | |

MATRIX SPIKE SAMPLE: 1442710

| Parameter | Units | 50134026001 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Mercury | mg/L | ND | .015 | 0.016 | 103 | 75-125 | |

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## QUALITY CONTROL DATA

Project: Mud Run Gun Club
Pace Project No.: 50133848

QC Batch: MPRP/19012 Analysis Method: EPA 6010
QC Batch Method: EPA 3050 Analysis Description: 6010 MET
Associated Lab Samples: 50133848001, 50133848002, 50133848003, 50133848004, 50133848005, 50133848006, 50133848007, 50133848008, 50133848009, 50133848010, 50133848011, 50133848020, 50133848021, 50133848022, 50133848023, 50133848024, 50133848025, 50133848026, 50133848027, 50133848028

METHOD BLANK: 1439395 Matrix: Solid
Associated Lab Samples: 50133848001, 50133848002, 50133848003, 50133848004, 50133848005, 50133848006, 50133848007, 50133848008, 50133848009, 50133848010, 50133848011, 50133848020, 50133848021, 50133848022, 50133848023, 50133848024, 50133848025, 50133848026, 50133848027, 50133848028

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Antimony | mg/kg | ND | 1.0 | 12/08/15 01:01 | |
| Arsenic | mg/kg | ND | 1.0 | 12/08/15 01:01 | |
| Lead | mg/kg | ND | 1.0 | 12/08/15 01:01 | |
| Nickel | mg/kg | ND | 1.0 | 12/08/15 01:01 | |

LABORATORY CONTROL SAMPLE: 1439396

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Antimony | mg/kg | 50 | 51.4 | 103 | 80-120 | |
| Arsenic | mg/kg | 50 | 51.5 | 103 | 80-120 | |
| Lead | mg/kg | 50 | 48.4 | 97 | 80-120 | |
| Nickel | mg/kg | 50 | 50.3 | 101 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1439397 1439398

| Parameter | Units | 50133848002 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | mg/kg | ND | 55.6 | 56.2 | 27.4 | 39.8 | 49 | 71 | 75-125 | 37 | 20 | 3d,M3 |
| Arsenic | mg/kg | 7.6 | 55.6 | 56.2 | 68.4 | 61.5 | 109 | 96 | 75-125 | 11 | 20 | |
| Lead | mg/kg | 9.8 | 55.6 | 56.2 | 60.3 | 57.8 | 91 | 86 | 75-125 | 4 | 20 | |
| Nickel | mg/kg | 8.7 | 55.6 | 56.2 | 60.4 | 53.8 | 93 | 80 | 75-125 | 12 | 20 | |

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## QUALITY CONTROL DATA

Project: Mud Run Gun Club
Pace Project No.: 50133848

QC Batch: MPRP/19013 Analysis Method: EPA 6010
QC Batch Method: EPA 3050 Analysis Description: 6010 MET
Associated Lab Samples: 50133848029, 50133848030, 50133848031, 50133848032, 50133848033, 50133848034, 50133848035, 50133848036, 50133848037, 50133848038, 50133848039, 50133848040, 50133848041, 50133848042, 50133848043, 50133848044, 50133848045, 50133848046, 50133848047

METHOD BLANK: 1439500 Matrix: Solid
Associated Lab Samples: 50133848029, 50133848030, 50133848031, 50133848032, 50133848033, 50133848034, 50133848035, 50133848036, 50133848037, 50133848038, 50133848039, 50133848040, 50133848041, 50133848042, 50133848043, 50133848044, 50133848045, 50133848046, 50133848047

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Antimony | mg/kg | ND | 1.0 | 12/09/15 23:32 | |
| Arsenic | mg/kg | ND | 1.0 | 12/09/15 23:32 | |
| Lead | mg/kg | ND | 1.0 | 12/09/15 23:32 | |
| Nickel | mg/kg | ND | 1.0 | 12/09/15 23:32 | |

LABORATORY CONTROL SAMPLE: 1439501

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Antimony | mg/kg | 50 | 50.2 | 100 | 80-120 | |
| Arsenic | mg/kg | 50 | 50.7 | 101 | 80-120 | |
| Lead | mg/kg | 50 | 48.6 | 97 | 80-120 | |
| Nickel | mg/kg | 50 | 50.2 | 100 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1439502 1439503

| Parameter | Units | 50133848029 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | mg/kg | 2.9 | 59.7 | 61.3 | 21.8 | 20.1 | 32 | 28 | 75-125 | 8 | 20 | M3 |
| Arsenic | mg/kg | 14.7 | 59.7 | 61.3 | 68.7 | 68.2 | 90 | 87 | 75-125 | 1 | 20 | |
| Lead | mg/kg | 148 | 59.7 | 61.3 | 223 | 82.6 | 126 | -106 | 75-125 | 92 | 20 | 2d,M0 |
| Nickel | mg/kg | 14.9 | 59.7 | 61.3 | 65.8 | 66.7 | 85 | 85 | 75-125 | 1 | 20 | |

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## QUALITY CONTROL DATA

Project: Mud Run Gun Club
Pace Project No.: 50133848

QC Batch: MPRP/19021 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET TCLP
Associated Lab Samples: 50133848012, 50133848013, 50133848014, 50133848015, 50133848016, 50133848017

METHOD BLANK: 1440610 Matrix: Water
Associated Lab Samples: 50133848012, 50133848013, 50133848014, 50133848015, 50133848016, 50133848017

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Arsenic | mg/L | ND | 0.10 | 12/09/15 02:20 | |
| Barium | mg/L | ND | 5.0 | 12/09/15 02:20 | |
| Cadmium | mg/L | ND | 0.050 | 12/09/15 02:20 | |
| Chromium | mg/L | ND | 0.10 | 12/09/15 02:20 | |
| Lead | mg/L | ND | 0.10 | 12/09/15 02:20 | |
| Selenium | mg/L | ND | 0.10 | 12/09/15 02:20 | |
| Silver | mg/L | ND | 0.10 | 12/09/15 02:20 | |

LABORATORY CONTROL SAMPLE: 1440611

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Arsenic | mg/L | 10 | 10.2 | 102 | 80-120 | |
| Barium | mg/L | 10 | 9.7 | 97 | 80-120 | |
| Cadmium | mg/L | 10 | 9.7 | 97 | 80-120 | |
| Chromium | mg/L | 10 | 9.4 | 94 | 80-120 | |
| Lead | mg/L | 10 | 9.0 | 90 | 80-120 | |
| Selenium | mg/L | 10 | 10.1 | 101 | 80-120 | |
| Silver | mg/L | 5 | 4.8 | 95 | 80-120 | |

MATRIX SPIKE SAMPLE: 1440612

| Parameter | Units | 50133848012 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Arsenic | mg/L | 2.9 | 10 | 12.9 | 100 | 50-150 | |
| Barium | mg/L | ND | 10 | 10.2 | 95 | 50-150 | |
| Cadmium | mg/L | ND | 10 | 9.6 | 96 | 50-150 | |
| Chromium | mg/L | ND | 10 | 9.3 | 93 | 50-150 | |
| Lead | mg/L | 706 | 10 | 701 | -52 | 50-150 | P6 |
| Selenium | mg/L | ND | 10 | 9.9 | 99 | 50-150 | |
| Silver | mg/L | ND | 5 | 4.7 | 93 | 50-150 | |

MATRIX SPIKE SAMPLE: 1440613

| Parameter | Units | 50133878001 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Arsenic | mg/L | ND | 10 | 10.2 | 102 | 50-150 | |
| Barium | mg/L | ND | 10 | 9.7 | 97 | 50-150 | |
| Cadmium | mg/L | ND | 10 | 9.8 | 98 | 50-150 | |
| Chromium | mg/L | ND | 10 | 9.4 | 94 | 50-150 | |

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## QUALITY CONTROL DATA

Project: Mud Run Gun Club
Pace Project No.: 50133848

MATRIX SPIKE SAMPLE: 1440613

| Parameter | Units | 50133878001 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Lead | mg/L | ND | 10 | 9.0 | 90 | 50-150 | |
| Selenium | mg/L | ND | 10 | 10.2 | 102 | 50-150 | |
| Silver | mg/L | ND | 5 | 4.8 | 95 | 50-150 | |

MATRIX SPIKE SAMPLE: 1440614

| Parameter | Units | 50133844001 Result | Spike Conc. | MS Result | MS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|---|
| Arsenic | mg/L | ND | 10 | 10.1 | 101 | 50-150 | |
| Barium | mg/L | ND | 10 | 11.0 | 96 | 50-150 | |
| Cadmium | mg/L | ND | 10 | 9.8 | 98 | 50-150 | |
| Chromium | mg/L | ND | 10 | 9.4 | 94 | 50-150 | |
| Lead | mg/L | 2.7 | 10 | 11.7 | 90 | 50-150 | |
| Selenium | mg/L | ND | 10 | 10.1 | 101 | 50-150 | |
| Silver | mg/L | ND | 5 | 4.7 | 94 | 50-150 | |

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## QUALITY CONTROL DATA

Project: Mud Run Gun Club
Pace Project No.: 50133848

QC Batch: MPRP/19020
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET
Associated Lab Samples: 50133848018, 50133848019

METHOD BLANK: 1440463 Matrix: Water
Associated Lab Samples: 50133848018, 50133848019

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Antimony | ug/L | ND | 6.0 | 12/10/15 13:29 | |
| Arsenic | ug/L | ND | 10.0 | 12/10/15 13:29 | |
| Lead | ug/L | ND | 10.0 | 12/10/15 13:29 | |
| Nickel | ug/L | ND | 10.0 | 12/10/15 13:29 | |

LABORATORY CONTROL SAMPLE: 1440464

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Antimony | ug/L | 1000 | 1000 | 100 | 80-120 | |
| Arsenic | ug/L | 1000 | 964 | 96 | 80-120 | |
| Lead | ug/L | 1000 | 923 | 92 | 80-120 | |
| Nickel | ug/L | 1000 | 973 | 97 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1440465 1440466

| Parameter | Units | 50133363001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ug/L | ND | 1000 | 1000 | 1030 | 1010 | 103 | 101 | 75-125 | 2 | 20 | |
| Arsenic | ug/L | ND | 1000 | 1000 | 999 | 983 | 100 | 98 | 75-125 | 2 | 20 | |
| Lead | ug/L | ND | 1000 | 1000 | 880 | 864 | 88 | 86 | 75-125 | 2 | 20 | |
| Nickel | ug/L | ND | 1000 | 1000 | 940 | 921 | 93 | 91 | 75-125 | 2 | 20 | |

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## QUALITY CONTROL DATA

Project: Mud Run Gun Club
Pace Project No.: 50133848

QC Batch: OEXT/41755
QC Batch Method: EPA 3510
Analysis Method: EPA 8270 by SIM LVE
Analysis Description: 8270 Water PAH LV by SIM MSSV
Associated Lab Samples: 50133848018, 50133848019

METHOD BLANK: 1439210
Matrix: Water
Associated Lab Samples: 50133848018, 50133848019

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 2-Methylnaphthalene | ug/L | ND | 1.0 | 12/09/15 12:23 | |
| Acenaphthene | ug/L | ND | 1.0 | 12/09/15 12:23 | |
| Acenaphthylene | ug/L | ND | 1.0 | 12/09/15 12:23 | |
| Anthracene | ug/L | ND | 0.10 | 12/09/15 12:23 | |
| Benzo(a)anthracene | ug/L | ND | 0.10 | 12/09/15 12:23 | |
| Benzo(a)pyrene | ug/L | ND | 0.10 | 12/09/15 12:23 | |
| Benzo(b)fluoranthene | ug/L | ND | 0.10 | 12/09/15 12:23 | |
| Benzo(g,h,i)perylene | ug/L | ND | 0.10 | 12/09/15 12:23 | |
| Benzo(k)fluoranthene | ug/L | ND | 0.10 | 12/09/15 12:23 | |
| Chrysene | ug/L | ND | 0.50 | 12/09/15 12:23 | |
| Dibenz(a,h)anthracene | ug/L | ND | 0.092 | 12/09/15 12:23 | |
| Fluoranthene | ug/L | ND | 1.0 | 12/09/15 12:23 | |
| Fluorene | ug/L | ND | 1.0 | 12/09/15 12:23 | |
| Indeno(1,2,3-cd)pyrene | ug/L | ND | 0.10 | 12/09/15 12:23 | |
| Naphthalene | ug/L | ND | 1.0 | 12/09/15 12:23 | |
| Phenanthrene | ug/L | ND | 1.0 | 12/09/15 12:23 | |
| Pyrene | ug/L | ND | 1.0 | 12/09/15 12:23 | |
| 2-Fluorobiphenyl (S) | %. | 67 | 21-114 | 12/09/15 12:23 | |
| p-Terphenyl-d14 (S) | %. | 102 | 25-131 | 12/09/15 12:23 | |

LABORATORY CONTROL SAMPLE: 1439211

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 2-Methylnaphthalene | ug/L | 10 | 5.7 | 57 | 29-110 | |
| Acenaphthene | ug/L | 10 | 6.3 | 63 | 39-117 | |
| Acenaphthylene | ug/L | 10 | 6.8 | 68 | 40-120 | |
| Anthracene | ug/L | 10 | 8.0 | 80 | 48-126 | |
| Benzo(a)anthracene | ug/L | 10 | 8.2 | 82 | 51-134 | |
| Benzo(a)pyrene | ug/L | 10 | 6.5 | 65 | 48-141 | |
| Benzo(b)fluoranthene | ug/L | 10 | 7.5 | 75 | 49-139 | |
| Benzo(g,h,i)perylene | ug/L | 10 | 5.5 | 55 | 44-134 | |
| Benzo(k)fluoranthene | ug/L | 10 | 5.9 | 59 | 48-140 | |
| Chrysene | ug/L | 10 | 7.9 | 79 | 53-136 | |
| Dibenz(a,h)anthracene | ug/L | 10 | 5.8 | 58 | 44-132 | |
| Fluoranthene | ug/L | 10 | 7.4 | 74 | 50-135 | |
| Fluorene | ug/L | 10 | 6.8 | 68 | 44-124 | |
| Indeno(1,2,3-cd)pyrene | ug/L | 10 | 5.9 | 59 | 45-132 | |
| Naphthalene | ug/L | 10 | 6.1 | 61 | 30-112 | |
| Phenanthrene | ug/L | 10 | 7.2 | 72 | 47-128 | |
| Pyrene | ug/L | 10 | 8.8 | 88 | 50-134 | |

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## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: Mud Run Gun Club
Pace Project No.: 50133848

LABORATORY CONTROL SAMPLE: 1439211

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 2-Fluorobiphenyl (S) | %. | | | 62 | 21-114 | |
| p-Terphenyl-d14 (S) | %. | | | 96 | 25-131 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1439212 1439213

| Parameter | Units | 50133634006 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2-Methylnaphthalene | ug/L | 0.68J | 10 | 10 | 6.5 | 6.8 | 59 | 61 | 16-116 | 4 | 20 | |
| Acenaphthene | ug/L | ND | 10 | 10 | 6.4 | 6.9 | 61 | 65 | 28-116 | 7 | 20 | |
| Acenaphthylene | ug/L | ND | 10 | 10 | 6.7 | 7.2 | 67 | 71 | 34-115 | 7 | 20 | |
| Anthracene | ug/L | ND | 10 | 10 | 7.3 | 8.1 | 73 | 81 | 39-121 | 11 | 20 | |
| Benzo(a)anthracene | ug/L | ND | 10 | 10 | 7.5 | 8.2 | 75 | 82 | 31-127 | 9 | 20 | |
| Benzo(a)pyrene | ug/L | ND | 10 | 10 | 5.3 | 6.0 | 53 | 60 | 10-121 | 12 | 20 | |
| Benzo(b)fluoranthene | ug/L | ND | 10 | 10 | 5.1 | 5.6 | 51 | 56 | 10-119 | 9 | 20 | |
| Benzo(g,h,i)perylene | ug/L | ND | 10 | 10 | 3.0 | 3.6 | 30 | 36 | 10-108 | 16 | 20 | |
| Benzo(k)fluoranthene | ug/L | ND | 10 | 10 | 5.6 | 6.5 | 56 | 65 | 10-118 | 15 | 20 | |
| Chrysene | ug/L | ND | 10 | 10 | 7.1 | 8.2 | 71 | 82 | 32-127 | 14 | 20 | |
| Dibenz(a,h)anthracene | ug/L | ND | 10 | 10 | 2.9 | 3.4 | 29 | 34 | 10-104 | 15 | 20 | |
| Fluoranthene | ug/L | ND | 10 | 10 | 6.8 | 7.7 | 68 | 77 | 38-131 | 13 | 20 | |
| Fluorene | ug/L | ND | 10 | 10 | 6.8 | 7.3 | 64 | 69 | 33-121 | 6 | 20 | |
| Indeno(1,2,3-cd)pyrene | ug/L | ND | 10 | 10 | 3.2 | 3.8 | 32 | 38 | 10-108 | 16 | 20 | |
| Naphthalene | ug/L | 0.95J | 10 | 10 | 7.2 | 7.8 | 63 | 69 | 16-119 | 8 | 20 | |
| Phenanthrene | ug/L | ND | 10 | 10 | 6.6 | 7.4 | 66 | 74 | 32-130 | 11 | 20 | |
| Pyrene | ug/L | ND | 10 | 10 | 7.8 | 8.8 | 78 | 88 | 39-131 | 12 | 20 | |
| 2-Fluorobiphenyl (S) | %. | | | | | | 64 | 73 | 21-114 | | | |
| p-Terphenyl-d14 (S) | %. | | | | | | 89 | 94 | 25-131 | | | |

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## QUALITY CONTROL DATA

Project: Mud Run Gun Club
Pace Project No.: 50133848

QC Batch: OEXT/41749 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3546 Analysis Description: 8270 MSSV PAH by SIM
Associated Lab Samples: 50133848001, 50133848002, 50133848003, 50133848004, 50133848005, 50133848006, 50133848007, 50133848008, 50133848009, 50133848010

METHOD BLANK: 1439186 Matrix: Solid
Associated Lab Samples: 50133848001, 50133848002, 50133848003, 50133848004, 50133848005, 50133848006, 50133848007, 50133848008, 50133848009, 50133848010

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 2-Methylnaphthalene | mg/kg | ND | 0.0050 | 12/10/15 16:16 | |
| Acenaphthene | mg/kg | ND | 0.0050 | 12/10/15 16:16 | |
| Acenaphthylene | mg/kg | ND | 0.0050 | 12/10/15 16:16 | |
| Anthracene | mg/kg | ND | 0.0050 | 12/10/15 16:16 | |
| Benzo(a)anthracene | mg/kg | ND | 0.0050 | 12/10/15 16:16 | |
| Benzo(a)pyrene | mg/kg | ND | 0.0050 | 12/10/15 16:16 | |
| Benzo(b)fluoranthene | mg/kg | ND | 0.0050 | 12/10/15 16:16 | |
| Benzo(g,h,i)perylene | mg/kg | ND | 0.0050 | 12/10/15 16:16 | |
| Benzo(k)fluoranthene | mg/kg | ND | 0.0050 | 12/10/15 16:16 | |
| Chrysene | mg/kg | ND | 0.0050 | 12/10/15 16:16 | |
| Dibenz(a,h)anthracene | mg/kg | ND | 0.0050 | 12/10/15 16:16 | |
| Fluoranthene | mg/kg | ND | 0.0050 | 12/10/15 16:16 | |
| Fluorene | mg/kg | ND | 0.0050 | 12/10/15 16:16 | |
| Indeno(1,2,3-cd)pyrene | mg/kg | ND | 0.0050 | 12/10/15 16:16 | |
| Naphthalene | mg/kg | ND | 0.0050 | 12/10/15 16:16 | IS |
| Phenanthrene | mg/kg | ND | 0.0050 | 12/10/15 16:16 | |
| Pyrene | mg/kg | ND | 0.0050 | 12/10/15 16:16 | |
| 2-Fluorobiphenyl (S) | %. | 72 | 38-110 | 12/10/15 16:16 | |
| p-Terphenyl-d14 (S) | %. | 88 | 32-111 | 12/10/15 16:16 | |

LABORATORY CONTROL SAMPLE: 1439187

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 2-Methylnaphthalene | mg/kg | .33 | 0.29 | 86 | 39-104 | |
| Acenaphthene | mg/kg | .33 | 0.28 | 85 | 43-108 | |
| Acenaphthylene | mg/kg | .33 | 0.29 | 86 | 44-110 | |
| Anthracene | mg/kg | .33 | 0.31 | 93 | 44-112 | |
| Benzo(a)anthracene | mg/kg | .33 | 0.32 | 96 | 43-124 | |
| Benzo(a)pyrene | mg/kg | .33 | 0.30 | 89 | 44-124 | |
| Benzo(b)fluoranthene | mg/kg | .33 | 0.31 | 93 | 44-123 | |
| Benzo(g,h,i)perylene | mg/kg | .33 | 0.27 | 80 | 44-118 | |
| Benzo(k)fluoranthene | mg/kg | .33 | 0.27 | 81 | 42-122 | |
| Chrysene | mg/kg | .33 | 0.30 | 91 | 44-124 | IS |
| Dibenz(a,h)anthracene | mg/kg | .33 | 0.29 | 86 | 44-119 | |
| Fluoranthene | mg/kg | .33 | 0.31 | 93 | 45-119 | |
| Fluorene | mg/kg | .33 | 0.29 | 86 | 44-113 | |
| Indeno(1,2,3-cd)pyrene | mg/kg | .33 | 0.28 | 84 | 44-119 | |
| Naphthalene | mg/kg | .33 | 0.29 | 88 | 42-103 | |

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## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: Mud Run Gun Club
Pace Project No.: 50133848

LABORATORY CONTROL SAMPLE: 1439187

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Phenanthrene | mg/kg | .33 | 0.30 | 89 | 44-113 | |
| Pyrene | mg/kg | .33 | 0.31 | 92 | 45-123 | |
| 2-Fluorobiphenyl (S) | %. | | | 85 | 38-110 | |
| p-Terphenyl-d14 (S) | %. | | | 97 | 32-111 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1439188 1439189

| Parameter | Units | 50133745001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2-Methylnaphthalene | mg/kg | 0.17 | .36 | .36 | 0.59 | 0.49 | 116 | 87 | 10-131 | 20 | 20 | |
| Acenaphthene | mg/kg | 0.56 | .36 | .36 | 1.7 | 0.47 | 328 | -26 | 25-117 | 116 | 20 | M0,R1 |
| Acenaphthylene | mg/kg | 0.27 | .36 | .36 | 0.66 | 0.63 | 107 | 99 | 27-123 | 5 | 20 | |
| Anthracene | mg/kg | 2.2 | .36 | .36 | 5.4 | 1.6 | 891 | -165 | 20-123 | 107 | 20 | M0,R1 |
| Benzo(a)anthracene | mg/kg | 5.7 | .36 | .36 | 13.4 | 5.5 | 2140 | -53 | 23-124 | 84 | 20 | M0,R1 |
| Benzo(a)pyrene | mg/kg | 4.7 | .36 | .36 | 10.7 | 4.6 | 1680 | -17 | 23-120 | 80 | 20 | M0,R1 |
| Benzo(b)fluoranthene | mg/kg | 4.7 | .36 | .36 | 8.3 | 4.4 | 1010 | -80 | 24-117 | 62 | 20 | M0,R1 |
| Benzo(g,h,i)perylene | mg/kg | 3.0 | .36 | .36 | 6.1 | 3.2 | 870 | 61 | 12-122 | 63 | 20 | M0,R1 |
| Benzo(k)fluoranthene | mg/kg | 3.4 | .36 | .36 | 7.7 | 3.7 | 1190 | 75 | 14-123 | 70 | 20 | M0,R1 |
| Chrysene | mg/kg | 5.1 | .36 | .36 | 11.7 | 5.0 | 1840 | -19 | 22-124 | 80 | 20 | M0,R1 |
| Dibenz(a,h)anthracene | mg/kg | 1.4 | .36 | .36 | 2.7 | 1.5 | 369 | 51 | 26-113 | 54 | 20 | M0,R1 |
| Fluoranthene | mg/kg | 13.5 | .36 | .36 | 26.6 | 10.6 | 3620 | -822 | 21-125 | 86 | 20 | M0,R1 |
| Fluorene | mg/kg | 0.53 | .36 | .36 | 1.5 | 0.44 | 262 | -26 | 19-127 | 108 | 20 | M0,R1 |
| Indeno(1,2,3-cd)pyrene | mg/kg | 2.7 | .36 | .36 | 5.6 | 2.9 | 814 | 55 | 15-121 | 64 | 20 | M0,R1 |
| Naphthalene | mg/kg | 0.36 | .36 | .36 | 0.86 | 0.83 | 138 | 132 | 15-125 | 3 | 20 | 1d,M0 |
| Phenanthrene | mg/kg | 7.1 | .36 | .36 | 19.0 | 4.4 | 3290 | -752 | 10-139 | 125 | 20 | M0,R1 |
| Pyrene | mg/kg | 12.8 | .36 | .36 | 25.3 | 9.8 | 3470 | -834 | 17-132 | 88 | 20 | M0,R1 |
| 2-Fluorobiphenyl (S) | %. | | | | | | 69 | 71 | 38-110 | | | |
| p-Terphenyl-d14 (S) | %. | | | | | | 79 | 80 | 32-111 | | | |

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## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: Mud Run Gun Club
Pace Project No.: 50133848

QC Batch: OEXT/41750 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3546 Analysis Description: 8270 MSSV PAH by SIM
Associated Lab Samples: 50133848011, 50133848012, 50133848013, 50133848014, 50133848015, 50133848016, 50133848017, 50133848035, 50133848036, 50133848037, 50133848038, 50133848039, 50133848040, 50133848041, 50133848042, 50133848043

METHOD BLANK: 1439190 Matrix: Solid
Associated Lab Samples: 50133848011, 50133848012, 50133848013, 50133848014, 50133848015, 50133848016, 50133848017, 50133848035, 50133848036, 50133848037, 50133848038, 50133848039, 50133848040, 50133848041, 50133848042, 50133848043

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 2-Methylnaphthalene | mg/kg | ND | 0.0050 | 12/10/15 18:33 | |
| Acenaphthene | mg/kg | ND | 0.0050 | 12/10/15 18:33 | |
| Acenaphthylene | mg/kg | ND | 0.0050 | 12/10/15 18:33 | |
| Anthracene | mg/kg | ND | 0.0050 | 12/10/15 18:33 | |
| Benzo(a)anthracene | mg/kg | ND | 0.0050 | 12/10/15 18:33 | |
| Benzo(a)pyrene | mg/kg | ND | 0.0050 | 12/10/15 18:33 | |
| Benzo(b)fluoranthene | mg/kg | ND | 0.0050 | 12/10/15 18:33 | |
| Benzo(g,h,i)perylene | mg/kg | ND | 0.0050 | 12/10/15 18:33 | |
| Benzo(k)fluoranthene | mg/kg | ND | 0.0050 | 12/10/15 18:33 | |
| Chrysene | mg/kg | ND | 0.0050 | 12/10/15 18:33 | |
| Dibenz(a,h)anthracene | mg/kg | ND | 0.0050 | 12/10/15 18:33 | |
| Fluoranthene | mg/kg | ND | 0.0050 | 12/10/15 18:33 | |
| Fluorene | mg/kg | ND | 0.0050 | 12/10/15 18:33 | |
| Indeno(1,2,3-cd)pyrene | mg/kg | ND | 0.0050 | 12/10/15 18:33 | |
| Naphthalene | mg/kg | ND | 0.0050 | 12/10/15 18:33 | IS |
| Phenanthrene | mg/kg | ND | 0.0050 | 12/10/15 18:33 | |
| Pyrene | mg/kg | ND | 0.0050 | 12/10/15 18:33 | |
| 2-Fluorobiphenyl (S) | %. | 88 | 38-110 | 12/10/15 18:33 | |
| p-Terphenyl-d14 (S) | %. | 96 | 32-111 | 12/10/15 18:33 | |

LABORATORY CONTROL SAMPLE: 1439191

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 2-Methylnaphthalene | mg/kg | .33 | 0.26 | 78 | 39-104 | |
| Acenaphthene | mg/kg | .33 | 0.26 | 78 | 43-108 | |
| Acenaphthylene | mg/kg | .33 | 0.26 | 78 | 44-110 | |
| Anthracene | mg/kg | .33 | 0.28 | 83 | 44-112 | |
| Benzo(a)anthracene | mg/kg | .33 | 0.28 | 85 | 43-124 | |
| Benzo(a)pyrene | mg/kg | .33 | 0.27 | 80 | 44-124 | |
| Benzo(b)fluoranthene | mg/kg | .33 | 0.27 | 82 | 44-123 | |
| Benzo(g,h,i)perylene | mg/kg | .33 | 0.25 | 74 | 44-118 | |
| Benzo(k)fluoranthene | mg/kg | .33 | 0.26 | 78 | 42-122 | |
| Chrysene | mg/kg | .33 | 0.27 | 81 | 44-124 | |
| Dibenz(a,h)anthracene | mg/kg | .33 | 0.26 | 79 | 44-119 | |
| Fluoranthene | mg/kg | .33 | 0.28 | 84 | 45-119 | |
| Fluorene | mg/kg | .33 | 0.27 | 80 | 44-113 | |

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## QUALITY CONTROL DATA

Project: Mud Run Gun Club
Pace Project No.: 50133848

LABORATORY CONTROL SAMPLE: 1439191

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Indeno(1,2,3-cd)pyrene | mg/kg | .33 | 0.26 | 79 | 44-119 | |
| Naphthalene | mg/kg | .33 | 0.26 | 77 | 42-103 | IS |
| Phenanthrene | mg/kg | .33 | 0.27 | 82 | 44-113 | |
| Pyrene | mg/kg | .33 | 0.27 | 81 | 45-123 | |
| 2-Fluorobiphenyl (S) | %. | | | 79 | 38-110 | |
| p-Terphenyl-d14 (S) | %. | | | 87 | 32-111 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1439192 1439193

| Parameter | Units | 50133848011 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2-Methylnaphthalene | mg/kg | ND | 1.2 | 1.2 | 0.85 | 0.85 | 70 | 70 | 10-131 | 0 | 20 | |
| Acenaphthene | mg/kg | ND | 1.2 | 1.2 | 0.82 | 0.77 | 67 | 63 | 25-117 | 6 | 20 | |
| Acenaphthylene | mg/kg | ND | 1.2 | 1.2 | 0.80 | 0.80 | 66 | 65 | 27-123 | 1 | 20 | |
| Anthracene | mg/kg | 0.090 | 1.2 | 1.2 | 0.95 | 0.87 | 71 | 64 | 20-123 | 9 | 20 | |
| Benzo(a)anthracene | mg/kg | 4.0 | 1.2 | 1.2 | 1.1 | 1.2 | -239 | -237 | 23-124 | 2 | 20 | M0 |
| Benzo(a)pyrene | mg/kg | 3.3 | 1.2 | 1.2 | 1.1 | 1.1 | -185 | -181 | 23-120 | 5 | 20 | M0 |
| Benzo(b)fluoranthene | mg/kg | 1.5 | 1.2 | 1.2 | 1.1 | 0.97 | -37 | -45 | 24-117 | 10 | 20 | M0 |
| Benzo(g,h,i)perylene | mg/kg | 1.6 | 1.2 | 1.2 | 0.92 | 0.91 | -59 | -59 | 12-122 | 1 | 20 | M0 |
| Benzo(k)fluoranthene | mg/kg | 0.51 | 1.2 | 1.2 | 0.99 | 0.90 | 39 | 32 | 14-123 | 9 | 20 | |
| Chrysene | mg/kg | 7.7 | 1.2 | 1.2 | 1.3 | 1.4 | -531 | -522 | 22-124 | 9 | 20 | M0 |
| Dibenz(a,h)anthracene | mg/kg | 0.92 | 1.2 | 1.2 | 0.84 | 0.78 | -7 | -12 | 26-113 | 7 | 20 | M0 |
| Fluoranthene | mg/kg | 0.33 | 1.2 | 1.2 | 1.5 | 1.1 | 92 | 64 | 21-125 | 27 | 20 | R1 |
| Fluorene | mg/kg | ND | 1.2 | 1.2 | 0.82 | 0.78 | 67 | 64 | 19-127 | 5 | 20 | |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.55 | 1.2 | 1.2 | 0.88 | 0.83 | 27 | 23 | 15-121 | 6 | 20 | |
| Naphthalene | mg/kg | ND | 1.2 | 1.2 | 0.85 | 0.86 | 70 | 71 | 15-125 | 1 | 20 | 1d |
| Phenanthrene | mg/kg | 0.36 | 1.2 | 1.2 | 1.2 | 0.93 | 67 | 46 | 10-139 | 24 | 20 | R1 |
| Pyrene | mg/kg | 1.8 | 1.2 | 1.2 | 1.3 | 1.1 | -37 | -53 | 17-132 | 17 | 20 | M0 |
| 2-Fluorobiphenyl (S) | %. | | | | | | 67 | 68 | 38-110 | | | |
| p-Terphenyl-d14 (S) | %. | | | | | | 77 | 77 | 32-111 | | | |

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## QUALITY CONTROL DATA

Project: Mud Run Gun Club
Pace Project No.: 50133848

QC Batch: PMST/11454 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 50133848001, 50133848002, 50133848003, 50133848004, 50133848005, 50133848006, 50133848007, 50133848008, 50133848009, 50133848010, 50133848011, 50133848012, 50133848013, 50133848014, 50133848015, 50133848016, 50133848017, 50133848020, 50133848021, 50133848022

SAMPLE DUPLICATE: 1439124

| Parameter | Units | 50133848001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Moisture | % | 15.5 | 20.9 | 29 | 5 | R1 |

SAMPLE DUPLICATE: 1439125

| Parameter | Units | 50133848022 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Moisture | % | 7.2 | 11.4 | 44 | 5 | R1 |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

## REPORT OF LABORATORY ANALYSIS

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7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

## QUALITY CONTROL DATA

Project: Mud Run Gun Club
Pace Project No.: 50133848

QC Batch: PMST/11455 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 50133848023, 50133848024, 50133848025, 50133848026, 50133848027, 50133848028, 50133848029, 50133848030, 50133848031, 50133848032, 50133848033, 50133848034, 50133848035, 50133848036, 50133848037, 50133848038, 50133848039, 50133848040, 50133848041, 50133848042

SAMPLE DUPLICATE: 1439126

| Parameter | Units | 50133848023 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Moisture | % | 20.5 | 21.4 | 4 | 5 | |

SAMPLE DUPLICATE: 1439127

| Parameter | Units | 50133848042 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Moisture | % | 16.2 | 16.3 | 1 | 5 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

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## QUALITY CONTROL DATA

Project: Mud Run Gun Club
Pace Project No.: 50133848

QC Batch: PMST/11456 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 50133848043, 50133848044, 50133848045, 50133848046, 50133848047

SAMPLE DUPLICATE: 1439128

| Parameter | Units | 50133848043 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Moisture | % | 16.7 | 16.3 | 2 | 5 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

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# QUALIFIERS

Project: Mud Run Gun Club
Pace Project No.: 50133848

## DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## ANALYTE QUALIFIERS

| | |
|---|---|
| 1d | Due to the extract's physical characteristics, the analysis was performed at dilution. |
| 2d | RPD is outside control limits due to sample non-homogeneity. JPK 12-10-15 |
| 3d | RPD is outside control limits due to sample non-homogeneity. JPK 12-8-15 |
| C0 | Result confirmed by second analysis. |
| D3 | Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference. |
| IS | The internal standard response is below criteria. Results may be biased high. |
| M0 | Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits. |
| M3 | Matrix spike recovery was outside laboratory control limits due to matrix interferences. |
| P6 | Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level. |
| R1 | RPD value was outside control limits. |
| S4 | Surrogate recovery not evaluated against control limits due to sample dilution. |

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## METHOD CROSS REFERENCE TABLE

Project: Mud Run Gun Club
Pace Project No.: 50133848

| Parameter | Matrix | Analytical Method | Preparation Method |
|---|---|---|---|
| 6010 MET ICP | Solid | SW-846 6010B | SW-846 3050B |
| 6010 MET ICP | Water | SW-846 6010B | SW-846 3010A |
| 8270 MSSV PAH by SIM | Solid | SW-846 8270C | SW-846 3546 |
| 8270 MSSV PAHLV | Water | SW-846 8270C | SW-846 3510C |

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Mud Run Gun Club
Pace Project No.: 50133848

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **50133848001** | **SD-1:0-1** | EPA 3050 | MPRP/19012 | EPA 6010 | ICP/23071 |
| **50133848002** | **SD-2:0-1** | EPA 3050 | MPRP/19012 | EPA 6010 | ICP/23071 |
| **50133848003** | **SD-3:0-1** | EPA 3050 | MPRP/19012 | EPA 6010 | ICP/23071 |
| **50133848004** | **SD-4:0-1** | EPA 3050 | MPRP/19012 | EPA 6010 | ICP/23071 |
| **50133848005** | **SD-5:0-1** | EPA 3050 | MPRP/19012 | EPA 6010 | ICP/23071 |
| **50133848006** | **SD-6:0-1** | EPA 3050 | MPRP/19012 | EPA 6010 | ICP/23071 |
| **50133848007** | **SD-7:0-1** | EPA 3050 | MPRP/19012 | EPA 6010 | ICP/23071 |
| **50133848008** | **SD-8:0-1** | EPA 3050 | MPRP/19012 | EPA 6010 | ICP/23071 |
| **50133848009** | **SD-9:0-1** | EPA 3050 | MPRP/19012 | EPA 6010 | ICP/23071 |
| **50133848010** | **SD-10:0-1** | EPA 3050 | MPRP/19012 | EPA 6010 | ICP/23071 |
| **50133848011** | **SD-10A:0-1** | EPA 3050 | MPRP/19012 | EPA 6010 | ICP/23071 |
| **50133848020** | **SB-1:0-2** | EPA 3050 | MPRP/19012 | EPA 6010 | ICP/23071 |
| **50133848021** | **SB-2:0-2** | EPA 3050 | MPRP/19012 | EPA 6010 | ICP/23071 |
| **50133848022** | **SB-3:0-2** | EPA 3050 | MPRP/19012 | EPA 6010 | ICP/23071 |
| **50133848023** | **SB-4:0-2** | EPA 3050 | MPRP/19012 | EPA 6010 | ICP/23071 |
| **50133848024** | **SB-5:0-2** | EPA 3050 | MPRP/19012 | EPA 6010 | ICP/23071 |
| **50133848025** | **SB-6:0-2** | EPA 3050 | MPRP/19012 | EPA 6010 | ICP/23071 |
| **50133848026** | **SB-7:0-2** | EPA 3050 | MPRP/19012 | EPA 6010 | ICP/23071 |
| **50133848027** | **SB-8:0-2** | EPA 3050 | MPRP/19012 | EPA 6010 | ICP/23071 |
| **50133848028** | **SB-9:0-2** | EPA 3050 | MPRP/19012 | EPA 6010 | ICP/23071 |
| **50133848029** | **SB-10:0-2** | EPA 3050 | MPRP/19013 | EPA 6010 | ICP/23122 |
| **50133848030** | **SB-11:0-2** | EPA 3050 | MPRP/19013 | EPA 6010 | ICP/23122 |
| **50133848031** | **SB-12:0-2** | EPA 3050 | MPRP/19013 | EPA 6010 | ICP/23122 |
| **50133848032** | **SB-13:0-2** | EPA 3050 | MPRP/19013 | EPA 6010 | ICP/23122 |
| **50133848033** | **SB-14:0-2** | EPA 3050 | MPRP/19013 | EPA 6010 | ICP/23122 |
| **50133848034** | **SB-15:0-2** | EPA 3050 | MPRP/19013 | EPA 6010 | ICP/23122 |
| **50133848035** | **SB-16:0-1** | EPA 3050 | MPRP/19013 | EPA 6010 | ICP/23122 |
| **50133848036** | **SB-17:0-1** | EPA 3050 | MPRP/19013 | EPA 6010 | ICP/23122 |
| **50133848037** | **SB-18:0-1** | EPA 3050 | MPRP/19013 | EPA 6010 | ICP/23122 |
| **50133848038** | **SB-18A:0-1** | EPA 3050 | MPRP/19013 | EPA 6010 | ICP/23122 |
| **50133848039** | **SB-19:0-1** | EPA 3050 | MPRP/19013 | EPA 6010 | ICP/23122 |
| **50133848040** | **SB-20:0-1** | EPA 3050 | MPRP/19013 | EPA 6010 | ICP/23122 |
| **50133848041** | **SB-21:0-1** | EPA 3050 | MPRP/19013 | EPA 6010 | ICP/23122 |
| **50133848042** | **SB-22:0-1** | EPA 3050 | MPRP/19013 | EPA 6010 | ICP/23122 |
| **50133848043** | **SB-23:0-1** | EPA 3050 | MPRP/19013 | EPA 6010 | ICP/23122 |
| **50133848044** | **SB-24:2-3** | EPA 3050 | MPRP/19013 | EPA 6010 | ICP/23122 |
| **50133848045** | **SB-25:2-3** | EPA 3050 | MPRP/19013 | EPA 6010 | ICP/23122 |
| **50133848046** | **SB-26:2-3** | EPA 3050 | MPRP/19013 | EPA 6010 | ICP/23122 |
| **50133848047** | **SB-27:2-3** | EPA 3050 | MPRP/19013 | EPA 6010 | ICP/23122 |
| **50133848012** | **TCLP-1:0-0.5** | EPA 3010 | MPRP/19021 | EPA 6010 | ICP/23104 |
| **50133848013** | **TCLP-2:0-0.5** | EPA 3010 | MPRP/19021 | EPA 6010 | ICP/23104 |
| **50133848014** | **TCLP-3:0-0.5** | EPA 3010 | MPRP/19021 | EPA 6010 | ICP/23104 |
| **50133848015** | **TCLP-4:0-0.5** | EPA 3010 | MPRP/19021 | EPA 6010 | ICP/23104 |
| **50133848016** | **TCLP-5:0-0.5** | EPA 3010 | MPRP/19021 | EPA 6010 | ICP/23104 |
| **50133848017** | **TCLP-6:0-0.5** | EPA 3010 | MPRP/19021 | EPA 6010 | ICP/23104 |
| **50133848018** | **EB-1** | EPA 3010 | MPRP/19020 | EPA 6010 | ICP/23132 |
| **50133848019** | **EB-2** | EPA 3010 | MPRP/19020 | EPA 6010 | ICP/23132 |

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Mud Run Gun Club
Pace Project No.: 50133848

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **50133848012** | **TCLP-1:0-0.5** | EPA 7470 | MERP/7221 | EPA 7470 | MERC/8526 |
| **50133848013** | **TCLP-2:0-0.5** | EPA 7470 | MERP/7221 | EPA 7470 | MERC/8526 |
| **50133848014** | **TCLP-3:0-0.5** | EPA 7470 | MERP/7221 | EPA 7470 | MERC/8526 |
| **50133848015** | **TCLP-4:0-0.5** | EPA 7470 | MERP/7221 | EPA 7470 | MERC/8526 |
| **50133848016** | **TCLP-5:0-0.5** | EPA 7470 | MERP/7221 | EPA 7470 | MERC/8526 |
| **50133848017** | **TCLP-6:0-0.5** | EPA 7470 | MERP/7221 | EPA 7470 | MERC/8526 |
| **50133848018** | **EB-1** | EPA 3510 | OEXT/41755 | EPA 8270 by SIM LVE | MSSV/19738 |
| **50133848019** | **EB-2** | EPA 3510 | OEXT/41755 | EPA 8270 by SIM LVE | MSSV/19738 |
| **50133848001** | **SD-1:0-1** | EPA 3546 | OEXT/41749 | EPA 8270 by SIM | MSSV/19748 |
| **50133848002** | **SD-2:0-1** | EPA 3546 | OEXT/41749 | EPA 8270 by SIM | MSSV/19748 |
| **50133848003** | **SD-3:0-1** | EPA 3546 | OEXT/41749 | EPA 8270 by SIM | MSSV/19748 |
| **50133848004** | **SD-4:0-1** | EPA 3546 | OEXT/41749 | EPA 8270 by SIM | MSSV/19748 |
| **50133848005** | **SD-5:0-1** | EPA 3546 | OEXT/41749 | EPA 8270 by SIM | MSSV/19748 |
| **50133848006** | **SD-6:0-1** | EPA 3546 | OEXT/41749 | EPA 8270 by SIM | MSSV/19748 |
| **50133848007** | **SD-7:0-1** | EPA 3546 | OEXT/41749 | EPA 8270 by SIM | MSSV/19748 |
| **50133848008** | **SD-8:0-1** | EPA 3546 | OEXT/41749 | EPA 8270 by SIM | MSSV/19748 |
| **50133848009** | **SD-9:0-1** | EPA 3546 | OEXT/41749 | EPA 8270 by SIM | MSSV/19748 |
| **50133848010** | **SD-10:0-1** | EPA 3546 | OEXT/41749 | EPA 8270 by SIM | MSSV/19748 |
| **50133848011** | **SD-10A:0-1** | EPA 3546 | OEXT/41750 | EPA 8270 by SIM | MSSV/19749 |
| **50133848012** | **TCLP-1:0-0.5** | EPA 3546 | OEXT/41750 | EPA 8270 by SIM | MSSV/19749 |
| **50133848013** | **TCLP-2:0-0.5** | EPA 3546 | OEXT/41750 | EPA 8270 by SIM | MSSV/19749 |
| **50133848014** | **TCLP-3:0-0.5** | EPA 3546 | OEXT/41750 | EPA 8270 by SIM | MSSV/19749 |
| **50133848015** | **TCLP-4:0-0.5** | EPA 3546 | OEXT/41750 | EPA 8270 by SIM | MSSV/19749 |
| **50133848016** | **TCLP-5:0-0.5** | EPA 3546 | OEXT/41750 | EPA 8270 by SIM | MSSV/19749 |
| **50133848017** | **TCLP-6:0-0.5** | EPA 3546 | OEXT/41750 | EPA 8270 by SIM | MSSV/19749 |
| **50133848035** | **SB-16:0-1** | EPA 3546 | OEXT/41750 | EPA 8270 by SIM | MSSV/19749 |
| **50133848036** | **SB-17:0-1** | EPA 3546 | OEXT/41750 | EPA 8270 by SIM | MSSV/19749 |
| **50133848037** | **SB-18:0-1** | EPA 3546 | OEXT/41750 | EPA 8270 by SIM | MSSV/19749 |
| **50133848038** | **SB-18A:0-1** | EPA 3546 | OEXT/41750 | EPA 8270 by SIM | MSSV/19749 |
| **50133848039** | **SB-19:0-1** | EPA 3546 | OEXT/41750 | EPA 8270 by SIM | MSSV/19749 |
| **50133848040** | **SB-20:0-1** | EPA 3546 | OEXT/41750 | EPA 8270 by SIM | MSSV/19749 |
| **50133848041** | **SB-21:0-1** | EPA 3546 | OEXT/41750 | EPA 8270 by SIM | MSSV/19749 |
| **50133848042** | **SB-22:0-1** | EPA 3546 | OEXT/41750 | EPA 8270 by SIM | MSSV/19749 |
| **50133848043** | **SB-23:0-1** | EPA 3546 | OEXT/41750 | EPA 8270 by SIM | MSSV/19749 |
| **50133848001** | **SD-1:0-1** | ASTM D2974-87 | PMST/11454 | | |
| **50133848002** | **SD-2:0-1** | ASTM D2974-87 | PMST/11454 | | |
| **50133848003** | **SD-3:0-1** | ASTM D2974-87 | PMST/11454 | | |
| **50133848004** | **SD-4:0-1** | ASTM D2974-87 | PMST/11454 | | |
| **50133848005** | **SD-5:0-1** | ASTM D2974-87 | PMST/11454 | | |
| **50133848006** | **SD-6:0-1** | ASTM D2974-87 | PMST/11454 | | |
| **50133848007** | **SD-7:0-1** | ASTM D2974-87 | PMST/11454 | | |
| **50133848008** | **SD-8:0-1** | ASTM D2974-87 | PMST/11454 | | |
| **50133848009** | **SD-9:0-1** | ASTM D2974-87 | PMST/11454 | | |
| **50133848010** | **SD-10:0-1** | ASTM D2974-87 | PMST/11454 | | |
| **50133848011** | **SD-10A:0-1** | ASTM D2974-87 | PMST/11454 | | |
| **50133848012** | **TCLP-1:0-0.5** | ASTM D2974-87 | PMST/11454 | | |
| **50133848013** | **TCLP-2:0-0.5** | ASTM D2974-87 | PMST/11454 | | |

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Mud Run Gun Club
Pace Project No.: 50133848

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **50133848014** | **TCLP-3:0-0.5** | ASTM D2974-87 | PMST/11454 | | |
| **50133848015** | **TCLP-4:0-0.5** | ASTM D2974-87 | PMST/11454 | | |
| **50133848016** | **TCLP-5:0-0.5** | ASTM D2974-87 | PMST/11454 | | |
| **50133848017** | **TCLP-6:0-0.5** | ASTM D2974-87 | PMST/11454 | | |
| **50133848020** | **SB-1:0-2** | ASTM D2974-87 | PMST/11454 | | |
| **50133848021** | **SB-2:0-2** | ASTM D2974-87 | PMST/11454 | | |
| **50133848022** | **SB-3:0-2** | ASTM D2974-87 | PMST/11454 | | |
| **50133848023** | **SB-4:0-2** | ASTM D2974-87 | PMST/11455 | | |
| **50133848024** | **SB-5:0-2** | ASTM D2974-87 | PMST/11455 | | |
| **50133848025** | **SB-6:0-2** | ASTM D2974-87 | PMST/11455 | | |
| **50133848026** | **SB-7:0-2** | ASTM D2974-87 | PMST/11455 | | |
| **50133848027** | **SB-8:0-2** | ASTM D2974-87 | PMST/11455 | | |
| **50133848028** | **SB-9:0-2** | ASTM D2974-87 | PMST/11455 | | |
| **50133848029** | **SB-10:0-2** | ASTM D2974-87 | PMST/11455 | | |
| **50133848030** | **SB-11:0-2** | ASTM D2974-87 | PMST/11455 | | |
| **50133848031** | **SB-12:0-2** | ASTM D2974-87 | PMST/11455 | | |
| **50133848032** | **SB-13:0-2** | ASTM D2974-87 | PMST/11455 | | |
| **50133848033** | **SB-14:0-2** | ASTM D2974-87 | PMST/11455 | | |
| **50133848034** | **SB-15:0-2** | ASTM D2974-87 | PMST/11455 | | |
| **50133848035** | **SB-16:0-1** | ASTM D2974-87 | PMST/11455 | | |
| **50133848036** | **SB-17:0-1** | ASTM D2974-87 | PMST/11455 | | |
| **50133848037** | **SB-18:0-1** | ASTM D2974-87 | PMST/11455 | | |
| **50133848038** | **SB-18A:0-1** | ASTM D2974-87 | PMST/11455 | | |
| **50133848039** | **SB-19:0-1** | ASTM D2974-87 | PMST/11455 | | |
| **50133848040** | **SB-20:0-1** | ASTM D2974-87 | PMST/11455 | | |
| **50133848041** | **SB-21:0-1** | ASTM D2974-87 | PMST/11455 | | |
| **50133848042** | **SB-22:0-1** | ASTM D2974-87 | PMST/11455 | | |
| **50133848043** | **SB-23:0-1** | ASTM D2974-87 | PMST/11456 | | |
| **50133848044** | **SB-24:2-3** | ASTM D2974-87 | PMST/11456 | | |
| **50133848045** | **SB-25:2-3** | ASTM D2974-87 | PMST/11456 | | |
| **50133848046** | **SB-26:2-3** | ASTM D2974-87 | PMST/11456 | | |
| **50133848047** | **SB-27:2-3** | ASTM D2974-87 | PMST/11456 | | |

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 4

1964614

| Section A Required Client Information: | Section B Required Project Information: | Section C Invoice Information: |
|---|---|---|
| Company: PANDEY Environmental | Report To: Nick Vallera | Attention: Nick Vallera |
| Address: 9160 Heritage Dr. Suite 205 Columbus, OH 43220 | Copy To: | Company Name: |
| | | Address: |
| Email To: nvallera@pandeyenvironmental.com | Purchase Order No.: | Pace Quote Reference: |
| Phone: 614-444-4078 Fax: | Project Name: Mud Run Gun Club | Pace Project Manager: Ken Hunt |
| Requested Due Date/TAT: STD | Project Number: | Pace Profile #: |

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☒ OTHER VAP

Site Location STATE: OH

Requested Analysis Filtered (Y/N)

5013384B

Section D Required Client Information

Matrix Codes — MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

| ITEM # | SAMPLE ID | MATRIX CODE (see valid codes to left) | SAMPLE TYPE (G=GRAB C=COMP) | COLLECTED: COMPOSITE START DATE | COMPOSITE START TIME | COMPOSITE END/GRAB DATE | COMPOSITE END/GRAB TIME | SAMPLE TEMP AT COLLECTION | # OF CONTAINERS | Preservatives: Unpreserved | $H_2SO_4$ | $HNO_3$ | HCl | NaOH | $Na_2S_2O_3$ | Methanol | Other | Analysis Test Y/N | Lead | Arsenic | Nickel | Antimony | PAHs | TCLP-Metals | TCLP-PAHs | Residual Chlorine (Y/N) | Pace Project No./ Lab I.D. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SD-1:0-1 | SL | G | | | 12-3-15 | 15:00 | | 1 | X | | | | | | | | | X | X | X | X | | | | | -001 |
| 2 | SD-2:0-1 | SL | G | | | | 14:55 | | 1 | X | | | | | | | | | X | X | X | X | | | | | -002 |
| 3 | SD-3:0-1 | SL | G | | | | 14:50 | | 1 | X | | | | | | | | | X | X | X | X | | | | | -003 |
| 4 | SD-4:0-1 | SL | G | | | | 14:45 | | 1 | X | | | | | | | | | X | X | X | X | | | | | -004 |
| 5 | SD-5:0-1 | SL | G | | | | 14:40 | | 1 | X | | | | | | | | | X | X | X | X | | | | | -005 |
| 6 | SD-6:0-1 | SL | G | | | | 14:00 | | 1 | X | | | | | | | | | X | X | X | X | | | | | -006 |
| 7 | SD-7:0-1 | SL | G | | | | 13:55 | | 1 | X | | | | | | | | | X | X | X | X | | | | | -007 |
| 8 | SD-8:0-1 | SL | G | | | | 13:50 | | 1 | X | | | | | | | | | X | X | X | X | | | | | -008 |
| 9 | SD-9:0-1 | SL | G | | | | 13:45 | | 1 | X | | | | | | | | | X | X | X | X | | | | | -009 |
| 10 | SD-10:0-1 | SL | G | | | | 13:40 | | 1 | X | | | | | | | | | X | X | X | X | | | | | -010 |
| 11 | SD-10A:0-1 | SL | G | | | | 13:40 | | 1 | X | | | | | | | | | X | X | X | X | | | | | -011 |
| 12 | TCLP-1:0-0.5 | SL | C | | | | 15:55 | | 1 | X | | | | | | | | | | | | | X | X | | | -012 |

| ADDITIONAL COMMENTS | RELINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME | SAMPLE CONDITIONS | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| VAP | | 12-4-15 | 15:20 | /PACE | 12-4-15 | 15:20 | | | | |
| | | | | FEDEX-BAS | | | | | | |
| | FEDEX-BAS | 12-5-15 | 0910 | /PACE | 12-5-15 | 0910 | 0.7 | Y | Y | Y |
| | | | | | | | | | | |

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: N. Vallera

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 12/04/15

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

ORIGINAL



*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



1964615

| Section A Required Client Information: | Section B Required Project Information: | Section C Invoice Information: |
|---|---|---|
| Company: PANDEY | Report To: | Attention: |
| Address: | Copy To: | Company Name: |
| | | Address: |
| Email To: | Purchase Order No.: | Pace Quote Reference: |
| Phone: Fax: | Project Name: | Pace Project Manager: |
| Requested Due Date/TAT: | Project Number: | Pace Profile #: |

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☒ OTHER VAP

Site Location STATE: OH

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

**SAMPLE ID** (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

5013 3848

| ITEM # | SAMPLE ID | MATRIX CODE (see valid codes to left) | SAMPLE TYPE (G=GRAB C=COMP) | COLLECTED COMPOSITE START DATE | COMPOSITE START TIME | COMPOSITE END/GRAB DATE | COMPOSITE END/GRAB TIME | SAMPLE TEMP AT COLLECTION | # OF CONTAINERS | Preservatives: Unpreserved | $H_2SO_4$ | $HNO_3$ | HCl | NaOH | $Na_2S_2O_3$ | Methanol | Other | Analysis Test (Y/N): Lead | Arsenic | Nickel | Antimony | TCLP Metals | Total PAHs | PAHs | Residual Chlorine (Y/N) | Pace Project No./ Lab I.D. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | TCLP-2:0-0.5 | SL | C | | | 12-3-15 | 16:00 | | 1 | X | | | | | | | | | | | | X | X | | | -013 |
| 2 | TCLP-3:0-0.5 | SL | C | | | | 16:05 | | 1 | X | | | | | | | | | | | | X | X | | | -014 |
| 3 | TCLP-4:0-0.5 | SL | C | | | | 16:10 | | 1 | X | | | | | | | | | | | | X | X | | | -015 |
| 4 | TCLP-5:0-0.5 | SL | C | | | | 16:15 | | 1 | X | | | | | | | | | | | | X | X | | | -016 |
| 5 | TCLP-6:0-0.5 | SL | C | | | ↓ | 16:30 | | 1 | X | | | | | | | | | | | | X | X | | | -017 |
| 6 | EB-1 | WT | G | | | 12-4-15 | 11:55 | | 2 | X | | X | | | | | | X | X | X | X | | X | | | -018 |
| 7 | EB-2 | WT | G | | | 12-4-15 | 12:00 | | 2 | X | | X | | | | | | X | X | X | X | | X | | | -019 |
| 8 | SB-1:0-2 | SL | G | | | 12-4-15 | 9:35 | | 1 | X | | | | | | | | | X | | | | | | | -020 |
| 9 | SB-2:0-2 | SL | G | | | 12-4-15 | 9:40 | | 1 | X | | | | | | | | | X | | | | | | | -021 |
| 10 | SB-3:0-2 | SL | G | | | 12-4-15 | 9:45 | | 1 | X | | | | | | | | | X | | | | | | | -022 |
| 11 | SB-4:0-2 | SL | G | | | 12-4-15 | 10:00 | | 1 | X | | | | | | | | | X | | | | | | | -023 |
| 12 | SB-5:0-2 | SL | G | | | 12-4-15 | 9:55 | | 1 | X | | | | | | | | | X | | | | | | | -024 |

| ADDITIONAL COMMENTS | RELINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME | SAMPLE CONDITIONS | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| VAP | | 12-4-15 | 15:20 | FEDEX-BAS | 12-4-15 | 15:20 | | | | |
| | FEDEX-BAS | 12-5-15 | 0910 | Brian Stelzer/PACE | 12-5-15 | 0910 | 0.7 | Y | Y | Y |

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Nick Valtera

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 12/04/15

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

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1964617

| Section A Required Client Information: | Section B Required Project Information: | Section C Invoice Information: |
|---|---|---|
| Company: PANDEY | Report To: | Attention: |
| Address: | Copy To: | Company Name: |
| | | Address: |
| Email To: | Purchase Order No.: | Pace Quote Reference: |
| Phone: Fax: | Project Name: | Pace Project Manager: |
| Requested Due Date/TAT: | Project Number: | Pace Profile #: |

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☒ OTHER VAP

Site Location STATE: OH

Section D Required Client Information

**SAMPLE ID**
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes — MATRIX / CODE

| | |
|---|---|
| Drinking Water | DW |
| Water | WT |
| Waste Water | WW |
| Product | P |
| Soil/Solid | SL |
| Oil | OL |
| Wipe | WP |
| Air | AR |
| Tissue | TS |
| Other | OT |

Requested Analysis Filtered (Y/N)

5013384B

| ITEM # | SAMPLE ID | MATRIX CODE (see valid codes to left) | SAMPLE TYPE (G=GRAB C=COMP) | COLLECTED: COMPOSITE START DATE | COMPOSITE START TIME | COMPOSITE END/GRAB DATE | COMPOSITE END/GRAB TIME | SAMPLE TEMP AT COLLECTION | # OF CONTAINERS | Preservatives: Unpreserved | $H_2SO_4$ | $HNO_3$ | HCl | NaOH | $Na_2S_2O_3$ | Methanol | Other | Analysis Test Y/N | Lead | Arsenic | Uranium | Antimony | PAHs | Residual Chlorine (Y/N) | Pace Project No./ Lab I.D. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SB-6:0-2 | SL | G | | | 12-4-15 | 9:50 | | 1 | X | | | | | | | | | X | X | X | X | X | | -025 |
| 2 | SB-7:0-2 | SL | G | | | | 10:05 | | 1 | X | | | | | | | | | X | X | X | X | X | | -026 |
| 3 | SB-8:0-2 | SL | G | | | | 10:10 | | 1 | X | | | | | | | | | X | X | X | X | X | | -027 |
| 4 | SB-9:0-2 | SL | G | | | | 10:15 | | 1 | X | | | | | | | | | X | X | X | X | X | | -028 |
| 5 | SB-10:0-2 | SL | G | | | | 10:30 | | 1 | X | | | | | | | | | X | X | X | X | X | | -029 |
| 6 | SB-11:0-2 | SL | G | | | | 10:25 | | 1 | X | | | | | | | | | X | X | X | X | X | | -030 |
| 7 | SB-12:0-2 | SL | G | | | | 10:20 | | 1 | X | | | | | | | | | X | X | X | X | X | | -031 |
| 8 | SB-13:0-2 | SL | G | | | | 10:33 | | 1 | X | | | | | | | | | X | X | X | X | X | | -032 |
| 9 | SB-14:0-2 | SL | G | | | | 10:36 | | 1 | X | | | | | | | | | X | X | X | X | X | | -033 |
| 10 | SB-15:0-2 | SL | G | | | | 10:39 | | 1 | X | | | | | | | | | X | X | X | X | X | | -034 |
| 11 | SB-16:0-1 | SL | G | | | | 11:15 | | 1 | X | | | | | | | | | X | X | X | X | X | | -035 |
| 12 | SB-17:0-1 | SL | G | | | | 11:20 | | 1 | X | | | | | | | | | X | X | X | X | X | | -036 |

| ADDITIONAL COMMENTS | RELINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME | SAMPLE CONDITIONS | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| VAP | | 12/4/15 | 15:20 | R Kostorter / PACE | 12-4-15 | 15:20 | | | | |
| | | | | FEDEX-BAS | | | | | | |
| | FEDEX-BAS | 12-5-15 | 0910 | Brian Stuler / PACE | 12-5-15 | 0910 | 0.7 | Y | Y | Y |
| | | | | | | | Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N) |

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: Mich Valera DATE Signed (MM/DD/YY): 12/04/15

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 4 of 4

1964618

| Section A Required Client Information: | Section B Required Project Information: | Section C Invoice Information: |
|---|---|---|
| Company: PANDEY | Report To: | Attention: |
| Address: | Copy To: | Company Name: |
| | | Address: |
| Email To: | Purchase Order No.: | Pace Quote Reference: |
| Phone: Fax: | Project Name: [illegible] Mud Run Gun Club | Pace Project Manager: |
| Requested Due Date/TAT: | Project Number: | Pace Profile #: |

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☒ OTHER VAP

Site Location STATE: OH

Section D Required Client Information

**SAMPLE ID**
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE)

| | |
|---|---|
| Drinking Water | DW |
| Water | WT |
| Waste Water | WW |
| Product | P |
| Soil/Solid | SL |
| Oil | OL |
| Wipe | WP |
| Air | AR |
| Tissue | TS |
| Other | OT |

Requested Analysis Filtered (Y/N)

5013384B

| ITEM # | SAMPLE ID | MATRIX CODE (see valid codes to left) | SAMPLE TYPE (G=GRAB C=COMP) | COLLECTED: COMPOSITE START DATE | COMPOSITE START TIME | COMPOSITE END/GRAB DATE | COMPOSITE END/GRAB TIME | SAMPLE TEMP AT COLLECTION | # OF CONTAINERS | Preservatives: Unpreserved | $H_2SO_4$ | $HNO_3$ | HCl | NaOH | $Na_2S_2O_3$ | Methanol | Other | Analysis Test Y/N | Lead | Arsenic | Nickel | Antimony | PAHs | Residual Chlorine (Y/N) | Pace Project No./ Lab I.D. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SB-18:0-1 | SL | G | | | 12-4-15 | 11:25 | | 1 | X | | | | | | | | | X | X | X | X | X | | -037 |
| 2 | SB-18A:0-1 | SL | G | | | | 11:27 | | 1 | X | | | | | | | | | X | X | X | X | X | | -038 |
| 3 | SB-19:0-1 | SL | G | | | | 11:35 | | 1 | X | | | | | | | | | X | X | X | X | X | | -039 |
| 4 | SB-20:0-1 | SL | G | | | | 10:45 | | 1 | X | | | | | | | | | X | X | X | X | X | | -040 |
| 5 | SB-21:0-1 | SL | G | | | | 10:48 | | 1 | X | | | | | | | | | X | X | X | X | X | | -041 |
| 6 | SB-22:0-1 | SL | G | | | | 10:42 | | 1 | X | | | | | | | | | X | X | X | X | X | | -042 |
| 7 | SB-23:0-1 | SL | G | | | | 10:51 | | 1 | X | | | | | | | | | X | X | X | X | X | | -043 |
| 8 | SB-24:2-3 | SL | G | | | | 10:57 | | 1 | X | | | | | | | | | X | | | | | | -044 |
| 9 | SB-25:2-3 | SL | G | | | | 10:54 | | 1 | X | | | | | | | | | X | | | | | | -045 |
| 10 | SB-26:2-3 | SL | G | | | | 11:05 | | 1 | X | | | | | | | | | X | | | | | | -046 |
| 11 | SB-27:2-3 | SL | G | | | | 11:10 | | 1 | X | | | | | | | | | X | | | | | | -047 |
| 12 | | | | | | | | | | | | | | | | | | | | | | | | | |

| ADDITIONAL COMMENTS | RELINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME | SAMPLE CONDITIONS | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| VAP | [signature] | 12/4/15 | 15:20 | N Rochester / PACE | 12/4/15 | 15:20 | | | | |
| | | | | FEDEX-BAS | | | | | | |
| | FEDEX-BAS | 12-5-15 | 0910 | Brian Stuber / PACE | 12-5-15 | 0910 | 0.7 | Y | Y | Y |

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Nick Valley

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 12/07/15

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

# Sample Condition Upon Receipt

Pace Analytical

Client Name: Pandey Env. Project # 50133848

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 6360 3739 5610

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no

Date/Time 5035A kits placed in freezer: _____

Packing Material: ☐ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other _____

Thermometer 1 2 3 4 5 6 (A) B C D E F Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature (Initial/Corrected) 0.7/0.7°C Ice Visible in Sample Containers: ☐ yes ☒ no

Temp should be above freezing to 6°C

Comments:

Date and initials of person examining contents: 12-5-15 RAS

| | | |
|---|---|---|
| Are samples from West Virginia? Document any containers out of temp. | ☐Yes ☒No | 1. |
| Chain of Custody Present: | ☒Yes ☐No ☐N/A | 2. |
| Chain of Custody Filled Out: | ☒Yes ☐No ☐N/A | 3. |
| Chain of Custody Relinquished: | ☒Yes ☐No ☐N/A | 4. |
| Sampler Name & Signature on COC: | ☒Yes ☐No ☐N/A | 5. |
| Short Hold Time Analysis (<72hr): | ☐Yes ☒No ☐N/A | 6. |
| Rush Turn Around Time Requested: | ☐Yes ☒No ☐N/A | 7. |
| Containers Intact: | ☒Yes ☐No ☐N/A | 8. |
| Sample Labels match COC: -Includes date/time/ID/Analysis | ☒Yes ☐No ☐N/A | 9. |
| All containers needing acid/base pres. have been checked? exceptions: VOA, coliform, TOC, O&G All containers needing preservation are found to be in compliance with EPA recommendation (<2, >9, >12) unless otherwise noted. | ☒Yes ☐No ☐N/A | 10 (Circle) HNO3 H2SO4 NaOH NaOH/ZnAc |
| Residual Chlorine Check (SVOC 625 Pest/PCB 608) | | 11. Present Absent |
| Residual Chlorine Check (Total/Amenable/Free Cyanide) | | 12. Present Absent |
| Headspace in VOA Vials ( >6mm): | ☐Yes ☐No ☒N/A | 13 |
| Headspace Wisconsin Sulfide | ☐Yes ☐No | 14 |
| Trip Blank Present: | ☐Yes ☒No ☐N/A | 15 |
| Trip Blank Custody Seals Present | ☐Yes ☐No ☒N/A | |
| **Project Manager Review** | | |
| Samples Arrived within Hold Time: | ☒Yes ☐No ☐N/A | 15. |
| Sufficient Volume: | ☒Yes ☐No ☐N/A | 16. |
| Correct Containers Used: | ☒Yes ☐No ☐N/A | 17. |

**Client Notification/ Resolution:** Field Data Required? Y / N.

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

**Project Manager Review:** Kenneth Hunt **Date:** 12/5/15

Form F-IN-Q-290-rev.09, 13Oct2015

## Sample Container Count

CLIENT: Pandey Env.

COC PAGE 1 of 4
COC ID# 1964614

Project # SD133848

| Sample Line Item | DG9H | AG1U | WGFU | AG0U | R | 4 / 6 | BP2N | BP2U | BP2S | BP3N | BP3U | BP3S | AG3S | AG1H | BP3C | BP1U | SP5T | AG2U | pH <2 | pH >9 | pH>12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | |

Container Codes

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DG9H | 40mL HCL amber voa vial | AG0U | 100mL unpreserved amber glass | BP1N | 1 liter HNO3 plastic | DG9P | 40mL TSP amber vial |
| AG1U | 1liter unpreserved amber glass | AG1H | 1 liter HCL amber glass | BP1S | 1 liter H2SO4 plastic | DG9S | 40mL H2SO4 amber vial |
| WGFU | 4oz clear soil jar | AG1S | 1 liter H2SO4 amber glass | BP1U | 1 liter unpreserved plastic | DG9T | 40mL Na Thio amber vial |
| R | terra core kit | AG1T | 1 liter Na Thiosulfate amber glass | BP1Z | 1 liter NaOH, Zn, Ac | DG9U | 40mL unpreserved **amber** vial |
| BP2N | 500mL HNO3 plastic | AG2N | 500mL HNO3 amber glass | BP2A | 500mL NaOH, Asc Acid plastic | SP5T | 120mL Coliform Na Thiosulfate |
| BP2U | 500mL unpreserved plastic | AG2S | 500mL H2SO4 amber glass | BP2O | 500mL NaOH plastic | JGFU | 4oz unpreserved amber wide |
| BP2S | 500mL H2SO4 plastic | AG2U | 500mL unpreserved amber glass | BP2Z | 500mL NaOH, Zn Ac | U | Summa Can |
| BP3N | 250mL HNO3 plastic | AG3U | 250mL unpreserved amber glass | AF | Air Filter | VG9H | 40mL HCL clear vial |
| BP3U | 250mL unpreserved plastic | BG1H | 1 liter HCL clear glass | BP3C | 250mL NaOH plastic | VG9T | 40mL Na Thio. clear vial |
| BP3S | 250mL H2SO4 plastic | BG1S | 1 liter H2SO4 clear glass | BP3Z | 250mL NaOH, Zn Ac plastic | VG9U | 40mL unpreserved **clear** vial |
| AG3S | 250mL H2SO4 glass amber | BG1T | 1 liter Na Thiosulfate clear glass | C | Air Cassettes | VSG | Headspace septa vial & HCL |
| AG1S | 1 liter H2SO4 amber glass | BG1U | 1 liter unpreserved glass | DG9B | 40mL Na Bisulfate amber vial | WGFX | 4oz wide jar w/hexane wipe |
| BP1U | 1 liter unpreserved plastic | BP1A | 1 liter NaOH, Asc Acid plastic | DG9M | 40mL MeOH clear vial | ZPLC | Ziploc Bag |

## Sample Container Count

CLIENT: Pandey

COC PAGE 2 of 4
COC ID# 1964615

Project # 50133848

| Sample Line Item | DG9H | AG1U | WGFU | AG0U | R 4/6 | BP2N | BP2U | BP2S | BP3N | BP3U | BP3S | AG3S | AG1H | BP3C | BP1U | SP5T | AG2U | pH <2 | pH >9 | pH>12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 1 | | | | | | | | | | | | | | | | | |
| 2 | | | ↓ | | | | | | | | | | | | | | | | | |
| 3 | | | ↓ | | | | | | | | | | | | | | | | | |
| 4 | | | ↓ | | | | | | | | | | | | | | | | | |
| 5 | | | ↓ | | | | | | | | | | | | | | | | | |
| 6 | | | | 1 | | | | | 1 | | | | | | | | | ✓ | | |
| 7 | | | | ↓ | | | | | ↓ | | | | | | | | | ↓ | | |
| 8 | | | 1 | | | | | | | | | | | | | | | | | |
| 9 | | | ↓ | | | | | | | | | | | | | | | | | |
| 10 | | | ↓ | | | | | | | | | | | | | | | | | |
| 11 | | | ↓ | | | | | | | | | | | | | | | | | |
| 12 | | | ↓ | | | | | | | | | | | | | | | | | |

Container Codes

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DG9H | 40mL HCL amber voa vial | AG0U | 100mL unpreserved amber glass | BP1N | 1 liter HNO3 plastic | DG9P | 40mL TSP amber vial |
| AG1U | 1liter unpreserved amber glass | AG1H | 1 liter HCL amber glass | BP1S | 1 liter H2SO4 plastic | DG9S | 40mL H2SO4 amber vial |
| WGFU | 4oz clear soil jar | AG1S | 1 liter H2SO4 amber glass | BP1U | 1 liter unpreserved plastic | DG9T | 40mL Na Thio amber vial |
| R | terra core kit | AG1T | 1 liter Na Thiosulfate amber glass | BP1Z | 1 liter NaOH, Zn, Ac | DG9U | 40mL unpreserved **amber** vial |
| BP2N | 500mL HNO3 plastic | AG2N | 500mL HNO3 amber glass | BP2A | 500mL NaOH, Asc Acid plastic | SP5T | 120mL Coliform Na Thiosulfate |
| BP2U | 500mL unpreserved plastic | AG2S | 500mL H2SO4 amber glass | BP2O | 500mL NaOH plastic | JGFU | 4oz unpreserved amber wide |
| BP2S | 500mL H2SO4 plastic | AG2U | 500mL unpreserved amber glass | BP2Z | 500mL NaOH, Zn Ac | U | Summa Can |
| BP3N | 250mL HNO3 plastic | AG3U | 250mL unpreserved amber glass | AF | Air Filter | VG9H | 40mL HCL clear vial |
| BP3U | 250mL unpreserved plastic | BG1H | 1 liter HCL clear glass | BP3C | 250mL NaOH plastic | VG9T | 40mL Na Thio. clear vial |
| BP3S | 250mL H2SO4 plastic | BG1S | 1 liter H2SO4 clear glass | BP3Z | 250mL NaOH, Zn Ac plastic | VG9U | 40mL unpreserved **clear** vial |
| AG3S | 250mL H2SO4 glass amber | BG1T | 1 liter Na Thiosulfate clear glass | C | Air Cassettes | VSG | Headspace septa vial & HCL |
| AG1S | 1 liter H2SO4 amber glass | BG1U | 1 liter unpreserved glass | DG9B | 40mL Na Bisulfate amber vial | WGFX | 4oz wide jar w/hexane wipe |
| BP1U | 1 liter unpreserved plastic | BP1A | 1 liter NaOH, Asc Acid plastic | DG9M | 40mL MeOH clear vial | ZPLC | Ziploc Bag |

## Sample Container Count

CLIENT: Pandey Env.

COC PAGE 3 of 4
COC ID# 1964617

Project # 501333848

| Sample Line Item | DG9H | AG1U | WGFU | AG0U | R 4/6 | BP2N | BP2U | BP2S | BP3N | BP3U | BP3S | AG3S | AG1H | BP3C | BP1U | SP5T | AG2U | | | | | | pH <2 | pH >9 | pH>12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | | | | | |

Container Codes

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DG9H | 40mL HCL amber voa vial | AG0U | 100mL unpreserved amber glass | BP1N | 1 liter HNO3 plastic | DG9P | 40mL TSP amber vial |
| AG1U | 1liter unpreserved amber glass | AG1H | 1 liter HCL amber glass | BP1S | 1 liter H2SO4 plastic | DG9S | 40mL H2SO4 amber vial |
| WGFU | 4oz clear soil jar | AG1S | 1 liter H2SO4 amber glass | BP1U | 1 liter unpreserved plastic | DG9T | 40mL Na Thio amber vial |
| R | terra core kit | AG1T | 1 liter Na Thiosulfate amber glass | BP1Z | 1 liter NaOH, Zn, Ac | DG9U | 40mL unpreserved **amber** vial |
| BP2N | 500mL HNO3 plastic | AG2N | 500mL HNO3 amber glass | BP2A | 500mL NaOH, Asc Acid plastic | SP5T | 120mL Coliform Na Thiosulfate |
| BP2U | 500mL unpreserved plastic | AG2S | 500mL H2SO4 amber glass | BP2O | 500mL NaOH plastic | JGFU | 4oz unpreserved amber wide |
| BP2S | 500mL H2SO4 plastic | AG2U | 500mL unpreserved amber glass | BP2Z | 500mL NaOH, Zn Ac | U | Summa Can |
| BP3N | 250mL HNO3 plastic | AG3U | 250mL unpreserved amber glass | AF | Air Filter | VG9H | 40mL HCL clear vial |
| BP3U | 250mL unpreserved plastic | BG1H | 1 liter HCL clear glass | BP3C | 250mL NaOH plastic | VG9T | 40mL Na Thio. clear vial |
| BP3S | 250mL H2SO4 plastic | BG1S | 1 liter H2SO4 clear glass | BP3Z | 250mL NaOH, Zn Ac plastic | VG9U | 40mL unpreserved **clear** vial |
| AG3S | 250mL H2SO4 glass amber | BG1T | 1 liter Na Thiosulfate clear glass | C | Air Cassettes | VSG | Headspace septa vial & HCL |
| AG1S | 1 liter H2SO4 amber glass | BG1U | 1 liter unpreserved glass | DG9B | 40mL Na Bisulfate amber vial | WGFX | 4oz wide jar w/hexane wipe |
| BP1U | 1 liter unpreserved plastic | BP1A | 1 liter NaOH, Asc Acid plastic | DG9M | 40mL MeOH clear vial | ZPLC | Ziploc Bag |

## Sample Container Count

CLIENT: Pandey Env.

COC PAGE 4 of 4
COC ID# 1964618

Project # 5013384S

| Sample Line Item | DG9H | AG1U | WGFU | AG0U | R 4/6 | BP2N | BP2U | BP2S | BP3N | BP3U | BP3S | AG3S | AG1H | BP3C | BP1U | SP5T | AG2U | | | | | | pH <2 | pH >9 | pH>12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | ↓ | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | | | | | |

Container Codes

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DG9H | 40mL HCL amber voa vial | AG0U | 100mL unpreserved amber glass | BP1N | 1 liter HNO3 plastic | DG9P | 40mL TSP amber vial |
| AG1U | 1liter unpreserved amber glass | AG1H | 1 liter HCL amber glass | BP1S | 1 liter H2SO4 plastic | DG9S | 40mL H2SO4 amber vial |
| WGFU | 4oz clear soil jar | AG1S | 1 liter H2SO4 amber glass | BP1U | 1 liter unpreserved plastic | DG9T | 40mL Na Thio amber vial |
| R | terra core kit | AG1T | 1 liter Na Thiosulfate amber glass | BP1Z | 1 liter NaOH, Zn, Ac | DG9U | 40mL unpreserved **amber** vial |
| BP2N | 500mL HNO3 plastic | AG2N | 500mL HNO3 amber glass | BP2A | 500mL NaOH, Asc Acid plastic | SP5T | 120mL Coliform Na Thiosulfate |
| BP2U | 500mL unpreserved plastic | AG2S | 500mL H2SO4 amber glass | BP2O | 500mL NaOH plastic | JGFU | 4oz unpreserved amber wide |
| BP2S | 500mL H2SO4 plastic | AG2U | 500mL unpreserved amber glass | BP2Z | 500mL NaOH, Zn Ac | U | Summa Can |
| BP3N | 250mL HNO3 plastic | AG3U | 250mL unpreserved amber glass | AF | Air Filter | VG9H | 40mL HCL clear vial |
| BP3U | 250mL unpreserved plastic | BG1H | 1 liter HCL clear glass | BP3C | 250mL NaOH plastic | VG9T | 40mL Na Thio. clear vial |
| BP3S | 250mL H2SO4 plastic | BG1S | 1 liter H2SO4 clear glass | BP3Z | 250mL NaOH, Zn Ac plastic | VG9U | 40mL unpreserved **clear** vial |
| AG3S | 250mL H2SO4 glass amber | BG1T | 1 liter Na Thiosulfate clear glass | C | Air Cassettes | VSG | Headspace septa vial & HCL |
| AG1S | 1 liter H2SO4 amber glass | BG1U | 1 liter unpreserved glass | DG9B | 40mL Na Bisulfate amber vial | WGFX | 4oz wide jar w/hexane wipe |
| BP1U | 1 liter unpreserved plastic | BP1A | 1 liter NaOH, Asc Acid plastic | DG9M | 40mL MeOH clear vial | ZPLC | Ziploc Bag |

# Affidavit of VAP Certified Laboratory

*[For VAP certified laboratories to attest to "certified data" under OAC 3745-300-13(N) and OAC 3745-300-04(A). Note that Ohio EPA is to receive a legible copy of the CL's affidavit. The entity that received the CL's analytical report under affidavit may retain the CL's affidavit original.]*

State of Indiana )
) ss:
County of Marion )

I, Lyle Cable, being first duly sworn according to law, state that, to the best of my knowledge, information and belief:

1. I am an adult over the age of eighteen years old and competent to testify herein.

2. I am employed by Pace Analytical Services - Indianapolis ("the laboratory") as Quality Assurance Analyst. I am authorized to submit this affidavit on behalf of the laboratory.

3. The purpose of this submission is to support a request for a no further action letter or other aspects of a voluntary action, under Ohio's Voluntary Action Program (VAP) as set forth in Ohio Revised Code Chapter 3746 and Ohio Administrative Code (OAC) Chapter 3745-300.

4. Pace Analytical Services - Indianapolis performed analyses for Pandey Environmental, LLC. for a voluntary action at property known as Mud Run Gun Club.

5. This affidavit applies to and is submitted with the following information, data, documents or reports for the property:

| Document ID | Date of Document |
|---|---|
| 50133848 | December 22, 2015 |

6. Pace Analytical Services - Indianapolis was a VAP certified laboratory pursuant to OAC 3745-300-04 when it performed the analyses referenced herein.

7. All analyses under this affidavit consist of VAP "certified data" as described in OAC 3745-300-04(A) - - unless paragraph b., below, specifies the exceptions:

   a. The laboratory performed the analyses within its current VAP certification, number CL0065. The laboratory was certified for each analyte, parameter group and method used at the time that it performed the analyses – see Method Cross Reference Table. The analyses were performed consistent with the laboratory's standard operating procedures and quality assurance program plan as approved under OAC 3745-300-04.

   b. Exceptions, if any: Any soil moisture performed by method ASTM D2974-87 used for dry weight correction of data or any analysis used for batch QC on matrix spikes, matrix spike duplicates or sample duplicates that are not associated with the referenced project number identified in item 5 above. The analyses specified below (a) may not have been or were not performed consistent with laboratory's procedures as required by its Ohio EPA-approved SOP or QAPP, or (b) are not encompassed by VAP's certified lab program.

**Pace Analytical Services, Inc.**
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**Pace Analytical Services, Inc.**
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(317)228-3100

January 12, 2016

Mr. Nick Vallera
Pandey Environmental, LLC
4100 Horizons Drive
Suite 205
Columbus, OH 43220

RE: Project: Former Mud Run Gun Club
Pace Project No.: 50135772

Dear Mr. Vallera:
Enclosed are the analytical results for sample(s) received by the laboratory on January 05, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kenneth Hunt
kenneth.hunt@pacelabs.com
Project Manager

Enclosures

**REPORT OF LABORATORY ANALYSIS**

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## CERTIFICATIONS

Project: Former Mud Run Gun Club
Pace Project No.: 50135772

**Indiana Certification IDs**
7726 Moller Road, Indianapolis, IN 46268
Illinois Certification #: 200074
Indiana Certification #: C-49-06
Kansas Certification #:E-10177
Kentucky UST Certification #: 0042
Kentucky WW Certification #:98019
Louisiana Certification #: 04076
Ohio VAP Certification #: CL-0065
Oklahoma Certification #: 2014-148
Texas Certification #: T104704355-15-9
West Virginia Certification #: 330
Wisconsin Certification #: 999788130
USDA Soil Permit #: P330-10-00128

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## SAMPLE SUMMARY

Project: Former Mud Run Gun Club
Pace Project No.: 50135772

| Lab ID | Sample ID | Matrix | Date Collected | Date Received |
|---|---|---|---|---|
| **50135772001** | **SD-11** | Solid | 12/30/15 10:25 | 01/05/16 09:30 |
| **50135772002** | **SD-12** | Solid | 12/30/15 10:45 | 01/05/16 09:30 |
| **50135772003** | **SD-13** | Solid | 12/30/15 11:20 | 01/05/16 09:30 |
| **50135772004** | **SD-14** | Solid | 12/30/15 11:50 | 01/05/16 09:30 |

## REPORT OF LABORATORY ANALYSIS

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## SAMPLE ANALYTE COUNT

Project: Former Mud Run Gun Club
Pace Project No.: 50135772

| Lab ID | Sample ID | Method | Analysts | Analytes Reported |
|---|---|---|---|---|
| **50135772001** | **SD-11** | EPA 6010 | MJC | 1 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | SCM | 1 |
| **50135772002** | **SD-12** | EPA 6010 | MJC | 1 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | SCM | 1 |
| **50135772003** | **SD-13** | EPA 6010 | MJC | 1 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | SCM | 1 |
| **50135772004** | **SD-14** | EPA 6010 | MJC | 1 |
| | | EPA 8270 by SIM | JCM | 19 |
| | | ASTM D2974-87 | SCM | 1 |

## REPORT OF LABORATORY ANALYSIS

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## SUMMARY OF DETECTION

Project: Former Mud Run Gun Club
Pace Project No.: 50135772

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **50135772001** | **SD-11** | | | | | |
| EPA 6010 | Lead | 20.7 | mg/kg | 1.1 | 01/08/16 11:22 | |
| EPA 8270 by SIM | Acenaphthene | 0.094 | mg/kg | 0.032 | 01/06/16 16:09 | |
| EPA 8270 by SIM | Anthracene | 0.13 | mg/kg | 0.032 | 01/06/16 16:09 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 0.52 | mg/kg | 0.032 | 01/06/16 16:09 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 0.54 | mg/kg | 0.032 | 01/06/16 16:09 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 0.46 | mg/kg | 0.032 | 01/06/16 16:09 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 0.34 | mg/kg | 0.032 | 01/06/16 16:09 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.44 | mg/kg | 0.032 | 01/06/16 16:09 | |
| EPA 8270 by SIM | Chrysene | 0.61 | mg/kg | 0.032 | 01/06/16 16:09 | |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 0.15 | mg/kg | 0.032 | 01/06/16 16:09 | |
| EPA 8270 by SIM | Fluoranthene | 0.82 | mg/kg | 0.032 | 01/06/16 16:09 | |
| EPA 8270 by SIM | Fluorene | 0.059 | mg/kg | 0.032 | 01/06/16 16:09 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.30 | mg/kg | 0.032 | 01/06/16 16:09 | |
| EPA 8270 by SIM | Phenanthrene | 0.53 | mg/kg | 0.032 | 01/06/16 16:09 | |
| EPA 8270 by SIM | Pyrene | 0.84 | mg/kg | 0.032 | 01/06/16 16:09 | |
| ASTM D2974-87 | Percent Moisture | 22.7 | % | 0.10 | 01/06/16 10:23 | |
| **50135772002** | **SD-12** | | | | | |
| EPA 6010 | Lead | 14.7 | mg/kg | 1.3 | 01/08/16 11:24 | |
| EPA 8270 by SIM | Anthracene | 0.0076 | mg/kg | 0.0070 | 01/06/16 17:01 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 0.048 | mg/kg | 0.0070 | 01/06/16 17:01 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 0.036 | mg/kg | 0.0070 | 01/06/16 17:01 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 0.031 | mg/kg | 0.0070 | 01/06/16 17:01 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 0.022 | mg/kg | 0.0070 | 01/06/16 17:01 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.025 | mg/kg | 0.0070 | 01/06/16 17:01 | |
| EPA 8270 by SIM | Chrysene | 0.068 | mg/kg | 0.0070 | 01/06/16 17:01 | |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 0.0098 | mg/kg | 0.0070 | 01/06/16 17:01 | |
| EPA 8270 by SIM | Fluoranthene | 0.064 | mg/kg | 0.0070 | 01/06/16 17:01 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.017 | mg/kg | 0.0070 | 01/06/16 17:01 | |
| EPA 8270 by SIM | Phenanthrene | 0.029 | mg/kg | 0.0070 | 01/06/16 17:01 | |
| EPA 8270 by SIM | Pyrene | 0.068 | mg/kg | 0.0070 | 01/06/16 17:01 | |
| ASTM D2974-87 | Percent Moisture | 29.2 | % | 0.10 | 01/06/16 10:24 | |
| **50135772003** | **SD-13** | | | | | |
| EPA 6010 | Lead | 9.0 | mg/kg | 1.0 | 01/08/16 11:26 | |
| EPA 8270 by SIM | Anthracene | 0.0073 | mg/kg | 0.0057 | 01/06/16 17:18 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 0.044 | mg/kg | 0.0057 | 01/06/16 17:18 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 0.043 | mg/kg | 0.0057 | 01/06/16 17:18 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 0.047 | mg/kg | 0.0057 | 01/06/16 17:18 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 0.033 | mg/kg | 0.0057 | 01/06/16 17:18 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.044 | mg/kg | 0.0057 | 01/06/16 17:18 | |
| EPA 8270 by SIM | Chrysene | 0.062 | mg/kg | 0.0057 | 01/06/16 17:18 | |
| EPA 8270 by SIM | Dibenz(a,h)anthracene | 0.012 | mg/kg | 0.0057 | 01/06/16 17:18 | |
| EPA 8270 by SIM | Fluoranthene | 0.11 | mg/kg | 0.0057 | 01/06/16 17:18 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.029 | mg/kg | 0.0057 | 01/06/16 17:18 | |
| EPA 8270 by SIM | Phenanthrene | 0.043 | mg/kg | 0.0057 | 01/06/16 17:18 | |
| EPA 8270 by SIM | Pyrene | 0.095 | mg/kg | 0.0057 | 01/06/16 17:18 | |
| ASTM D2974-87 | Percent Moisture | 13.2 | % | 0.10 | 01/06/16 10:24 | |

## REPORT OF LABORATORY ANALYSIS

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## SUMMARY OF DETECTION

Project: Former Mud Run Gun Club
Pace Project No.: 50135772

| Lab Sample ID / Method | Client Sample ID / Parameters | Result | Units | Report Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|---|
| **50135772004** | **SD-14** | | | | | |
| EPA 6010 | Lead | 6.8 | mg/kg | 1.4 | 01/08/16 11:28 | |
| EPA 8270 by SIM | Benzo(a)anthracene | 0.021 | mg/kg | 0.0076 | 01/06/16 17:36 | |
| EPA 8270 by SIM | Benzo(a)pyrene | 0.020 | mg/kg | 0.0076 | 01/06/16 17:36 | |
| EPA 8270 by SIM | Benzo(b)fluoranthene | 0.020 | mg/kg | 0.0076 | 01/06/16 17:36 | |
| EPA 8270 by SIM | Benzo(g,h,i)perylene | 0.015 | mg/kg | 0.0076 | 01/06/16 17:36 | |
| EPA 8270 by SIM | Benzo(k)fluoranthene | 0.019 | mg/kg | 0.0076 | 01/06/16 17:36 | |
| EPA 8270 by SIM | Chrysene | 0.033 | mg/kg | 0.0076 | 01/06/16 17:36 | |
| EPA 8270 by SIM | Fluoranthene | 0.037 | mg/kg | 0.0076 | 01/06/16 17:36 | |
| EPA 8270 by SIM | Indeno(1,2,3-cd)pyrene | 0.012 | mg/kg | 0.0076 | 01/06/16 17:36 | |
| EPA 8270 by SIM | Phenanthrene | 0.015 | mg/kg | 0.0076 | 01/06/16 17:36 | |
| EPA 8270 by SIM | Pyrene | 0.035 | mg/kg | 0.0076 | 01/06/16 17:36 | |
| ASTM D2974-87 | Percent Moisture | 34.1 | % | 0.10 | 01/06/16 10:24 | |

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## ANALYTICAL RESULTS

Project: Former Mud Run Gun Club
Pace Project No.: 50135772

**Sample: SD-11** **Lab ID: 50135772001** Collected: 12/30/15 10:25 Received: 01/05/16 09:30 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Lead | **20.7** | mg/kg | 1.1 | 1 | 01/07/16 12:12 | 01/08/16 11:22 | 7439-92-1 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | **0.094** | mg/kg | 0.032 | 5 | 01/06/16 12:30 | 01/06/16 16:09 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.032 | 5 | 01/06/16 12:30 | 01/06/16 16:09 | 208-96-8 | |
| Anthracene | **0.13** | mg/kg | 0.032 | 5 | 01/06/16 12:30 | 01/06/16 16:09 | 120-12-7 | |
| Benzo(a)anthracene | **0.52** | mg/kg | 0.032 | 5 | 01/06/16 12:30 | 01/06/16 16:09 | 56-55-3 | |
| Benzo(a)pyrene | **0.54** | mg/kg | 0.032 | 5 | 01/06/16 12:30 | 01/06/16 16:09 | 50-32-8 | |
| Benzo(b)fluoranthene | **0.46** | mg/kg | 0.032 | 5 | 01/06/16 12:30 | 01/06/16 16:09 | 205-99-2 | |
| Benzo(g,h,i)perylene | **0.34** | mg/kg | 0.032 | 5 | 01/06/16 12:30 | 01/06/16 16:09 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.44** | mg/kg | 0.032 | 5 | 01/06/16 12:30 | 01/06/16 16:09 | 207-08-9 | |
| Chrysene | **0.61** | mg/kg | 0.032 | 5 | 01/06/16 12:30 | 01/06/16 16:09 | 218-01-9 | |
| Dibenz(a,h)anthracene | **0.15** | mg/kg | 0.032 | 5 | 01/06/16 12:30 | 01/06/16 16:09 | 53-70-3 | |
| Fluoranthene | **0.82** | mg/kg | 0.032 | 5 | 01/06/16 12:30 | 01/06/16 16:09 | 206-44-0 | |
| Fluorene | **0.059** | mg/kg | 0.032 | 5 | 01/06/16 12:30 | 01/06/16 16:09 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.30** | mg/kg | 0.032 | 5 | 01/06/16 12:30 | 01/06/16 16:09 | 193-39-5 | |
| 2-Methylnaphthalene | ND | mg/kg | 0.032 | 5 | 01/06/16 12:30 | 01/06/16 16:09 | 91-57-6 | |
| Naphthalene | ND | mg/kg | 0.032 | 5 | 01/06/16 12:30 | 01/06/16 16:09 | 91-20-3 | 1d |
| Phenanthrene | **0.53** | mg/kg | 0.032 | 5 | 01/06/16 12:30 | 01/06/16 16:09 | 85-01-8 | |
| Pyrene | **0.84** | mg/kg | 0.032 | 5 | 01/06/16 12:30 | 01/06/16 16:09 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 68 | %. | 38-110 | 5 | 01/06/16 12:30 | 01/06/16 16:09 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 61 | %. | 32-111 | 5 | 01/06/16 12:30 | 01/06/16 16:09 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **22.7** | % | 0.10 | 1 | | 01/06/16 10:23 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Former Mud Run Gun Club
Pace Project No.: 50135772

**Sample: SD-12** **Lab ID: 50135772002** Collected: 12/30/15 10:45 Received: 01/05/16 09:30 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Lead | **14.7** | mg/kg | 1.3 | 1 | 01/07/16 12:12 | 01/08/16 11:24 | 7439-92-1 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.0070 | 1 | 01/06/16 12:30 | 01/06/16 17:01 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.0070 | 1 | 01/06/16 12:30 | 01/06/16 17:01 | 208-96-8 | |
| Anthracene | **0.0076** | mg/kg | 0.0070 | 1 | 01/06/16 12:30 | 01/06/16 17:01 | 120-12-7 | |
| Benzo(a)anthracene | **0.048** | mg/kg | 0.0070 | 1 | 01/06/16 12:30 | 01/06/16 17:01 | 56-55-3 | |
| Benzo(a)pyrene | **0.036** | mg/kg | 0.0070 | 1 | 01/06/16 12:30 | 01/06/16 17:01 | 50-32-8 | |
| Benzo(b)fluoranthene | **0.031** | mg/kg | 0.0070 | 1 | 01/06/16 12:30 | 01/06/16 17:01 | 205-99-2 | |
| Benzo(g,h,i)perylene | **0.022** | mg/kg | 0.0070 | 1 | 01/06/16 12:30 | 01/06/16 17:01 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.025** | mg/kg | 0.0070 | 1 | 01/06/16 12:30 | 01/06/16 17:01 | 207-08-9 | |
| Chrysene | **0.068** | mg/kg | 0.0070 | 1 | 01/06/16 12:30 | 01/06/16 17:01 | 218-01-9 | |
| Dibenz(a,h)anthracene | **0.0098** | mg/kg | 0.0070 | 1 | 01/06/16 12:30 | 01/06/16 17:01 | 53-70-3 | |
| Fluoranthene | **0.064** | mg/kg | 0.0070 | 1 | 01/06/16 12:30 | 01/06/16 17:01 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.0070 | 1 | 01/06/16 12:30 | 01/06/16 17:01 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.017** | mg/kg | 0.0070 | 1 | 01/06/16 12:30 | 01/06/16 17:01 | 193-39-5 | |
| 2-Methylnaphthalene | ND | mg/kg | 0.0070 | 1 | 01/06/16 12:30 | 01/06/16 17:01 | 91-57-6 | |
| Naphthalene | ND | mg/kg | 0.0070 | 1 | 01/06/16 12:30 | 01/06/16 17:01 | 91-20-3 | |
| Phenanthrene | **0.029** | mg/kg | 0.0070 | 1 | 01/06/16 12:30 | 01/06/16 17:01 | 85-01-8 | |
| Pyrene | **0.068** | mg/kg | 0.0070 | 1 | 01/06/16 12:30 | 01/06/16 17:01 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 51 | %. | 38-110 | 1 | 01/06/16 12:30 | 01/06/16 17:01 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 43 | %. | 32-111 | 1 | 01/06/16 12:30 | 01/06/16 17:01 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **29.2** | % | 0.10 | 1 | | 01/06/16 10:24 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Former Mud Run Gun Club
Pace Project No.: 50135772

**Sample: SD-13** **Lab ID: 50135772003** Collected: 12/30/15 11:20 Received: 01/05/16 09:30 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Lead | **9.0** | mg/kg | 1.0 | 1 | 01/07/16 12:12 | 01/08/16 11:26 | 7439-92-1 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.0057 | 1 | 01/06/16 12:30 | 01/06/16 17:18 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.0057 | 1 | 01/06/16 12:30 | 01/06/16 17:18 | 208-96-8 | |
| Anthracene | **0.0073** | mg/kg | 0.0057 | 1 | 01/06/16 12:30 | 01/06/16 17:18 | 120-12-7 | |
| Benzo(a)anthracene | **0.044** | mg/kg | 0.0057 | 1 | 01/06/16 12:30 | 01/06/16 17:18 | 56-55-3 | |
| Benzo(a)pyrene | **0.043** | mg/kg | 0.0057 | 1 | 01/06/16 12:30 | 01/06/16 17:18 | 50-32-8 | |
| Benzo(b)fluoranthene | **0.047** | mg/kg | 0.0057 | 1 | 01/06/16 12:30 | 01/06/16 17:18 | 205-99-2 | |
| Benzo(g,h,i)perylene | **0.033** | mg/kg | 0.0057 | 1 | 01/06/16 12:30 | 01/06/16 17:18 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.044** | mg/kg | 0.0057 | 1 | 01/06/16 12:30 | 01/06/16 17:18 | 207-08-9 | |
| Chrysene | **0.062** | mg/kg | 0.0057 | 1 | 01/06/16 12:30 | 01/06/16 17:18 | 218-01-9 | |
| Dibenz(a,h)anthracene | **0.012** | mg/kg | 0.0057 | 1 | 01/06/16 12:30 | 01/06/16 17:18 | 53-70-3 | |
| Fluoranthene | **0.11** | mg/kg | 0.0057 | 1 | 01/06/16 12:30 | 01/06/16 17:18 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.0057 | 1 | 01/06/16 12:30 | 01/06/16 17:18 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.029** | mg/kg | 0.0057 | 1 | 01/06/16 12:30 | 01/06/16 17:18 | 193-39-5 | |
| 2-Methylnaphthalene | ND | mg/kg | 0.0057 | 1 | 01/06/16 12:30 | 01/06/16 17:18 | 91-57-6 | |
| Naphthalene | ND | mg/kg | 0.0057 | 1 | 01/06/16 12:30 | 01/06/16 17:18 | 91-20-3 | |
| Phenanthrene | **0.043** | mg/kg | 0.0057 | 1 | 01/06/16 12:30 | 01/06/16 17:18 | 85-01-8 | |
| Pyrene | **0.095** | mg/kg | 0.0057 | 1 | 01/06/16 12:30 | 01/06/16 17:18 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 54 | %. | 38-110 | 1 | 01/06/16 12:30 | 01/06/16 17:18 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 62 | %. | 32-111 | 1 | 01/06/16 12:30 | 01/06/16 17:18 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **13.2** | % | 0.10 | 1 | | 01/06/16 10:24 | | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Former Mud Run Gun Club
Pace Project No.: 50135772

**Sample: SD-14** **Lab ID: 50135772004** Collected: 12/30/15 11:50 Received: 01/05/16 09:30 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | |
| Lead | **6.8** | mg/kg | 1.4 | 1 | 01/07/16 12:12 | 01/08/16 11:28 | 7439-92-1 | |
| **8270 MSSV PAH by SIM** | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3546 | | | | | | | |
| Acenaphthene | ND | mg/kg | 0.0076 | 1 | 01/06/16 12:30 | 01/06/16 17:36 | 83-32-9 | |
| Acenaphthylene | ND | mg/kg | 0.0076 | 1 | 01/06/16 12:30 | 01/06/16 17:36 | 208-96-8 | |
| Anthracene | ND | mg/kg | 0.0076 | 1 | 01/06/16 12:30 | 01/06/16 17:36 | 120-12-7 | |
| Benzo(a)anthracene | **0.021** | mg/kg | 0.0076 | 1 | 01/06/16 12:30 | 01/06/16 17:36 | 56-55-3 | |
| Benzo(a)pyrene | **0.020** | mg/kg | 0.0076 | 1 | 01/06/16 12:30 | 01/06/16 17:36 | 50-32-8 | |
| Benzo(b)fluoranthene | **0.020** | mg/kg | 0.0076 | 1 | 01/06/16 12:30 | 01/06/16 17:36 | 205-99-2 | |
| Benzo(g,h,i)perylene | **0.015** | mg/kg | 0.0076 | 1 | 01/06/16 12:30 | 01/06/16 17:36 | 191-24-2 | |
| Benzo(k)fluoranthene | **0.019** | mg/kg | 0.0076 | 1 | 01/06/16 12:30 | 01/06/16 17:36 | 207-08-9 | |
| Chrysene | **0.033** | mg/kg | 0.0076 | 1 | 01/06/16 12:30 | 01/06/16 17:36 | 218-01-9 | |
| Dibenz(a,h)anthracene | ND | mg/kg | 0.0076 | 1 | 01/06/16 12:30 | 01/06/16 17:36 | 53-70-3 | |
| Fluoranthene | **0.037** | mg/kg | 0.0076 | 1 | 01/06/16 12:30 | 01/06/16 17:36 | 206-44-0 | |
| Fluorene | ND | mg/kg | 0.0076 | 1 | 01/06/16 12:30 | 01/06/16 17:36 | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | **0.012** | mg/kg | 0.0076 | 1 | 01/06/16 12:30 | 01/06/16 17:36 | 193-39-5 | |
| 2-Methylnaphthalene | ND | mg/kg | 0.0076 | 1 | 01/06/16 12:30 | 01/06/16 17:36 | 91-57-6 | |
| Naphthalene | ND | mg/kg | 0.0076 | 1 | 01/06/16 12:30 | 01/06/16 17:36 | 91-20-3 | |
| Phenanthrene | **0.015** | mg/kg | 0.0076 | 1 | 01/06/16 12:30 | 01/06/16 17:36 | 85-01-8 | |
| Pyrene | **0.035** | mg/kg | 0.0076 | 1 | 01/06/16 12:30 | 01/06/16 17:36 | 129-00-0 | |
| ***Surrogates*** | | | | | | | | |
| 2-Fluorobiphenyl (S) | 66 | %. | 38-110 | 1 | 01/06/16 12:30 | 01/06/16 17:36 | 321-60-8 | |
| p-Terphenyl-d14 (S) | 59 | %. | 32-111 | 1 | 01/06/16 12:30 | 01/06/16 17:36 | 1718-51-0 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | |
| Percent Moisture | **34.1** | % | 0.10 | 1 | | 01/06/16 10:24 | | |

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: Former Mud Run Gun Club
Pace Project No.: 50135772

QC Batch: MPRP/19325 Analysis Method: EPA 6010
QC Batch Method: EPA 3050 Analysis Description: 6010 MET
Associated Lab Samples: 50135772001, 50135772002, 50135772003, 50135772004

METHOD BLANK: 1456957 Matrix: Solid
Associated Lab Samples: 50135772001, 50135772002, 50135772003, 50135772004

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Lead | mg/kg | ND | 1.0 | 01/08/16 10:24 | |

LABORATORY CONTROL SAMPLE: 1456958

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Lead | mg/kg | 50 | 48.1 | 96 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1456961 1456962

| Parameter | Units | 50135492017 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead | mg/kg | 145 | 54 | 47.1 | 250 | 180 | 194 | 74 | 75-125 | 33 | 20 | 2d,M0 |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: Former Mud Run Gun Club
Pace Project No.: 50135772

QC Batch: OEXT/42014 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3546 Analysis Description: 8270 MSSV PAH by SIM
Associated Lab Samples: 50135772001, 50135772002, 50135772003, 50135772004

METHOD BLANK: 1456358 Matrix: Solid
Associated Lab Samples: 50135772001, 50135772002, 50135772003, 50135772004

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 2-Methylnaphthalene | mg/kg | ND | 0.0049 | 01/06/16 14:59 | |
| Acenaphthene | mg/kg | ND | 0.0049 | 01/06/16 14:59 | |
| Acenaphthylene | mg/kg | ND | 0.0049 | 01/06/16 14:59 | |
| Anthracene | mg/kg | ND | 0.0049 | 01/06/16 14:59 | |
| Benzo(a)anthracene | mg/kg | ND | 0.0049 | 01/06/16 14:59 | |
| Benzo(a)pyrene | mg/kg | ND | 0.0049 | 01/06/16 14:59 | |
| Benzo(b)fluoranthene | mg/kg | ND | 0.0049 | 01/06/16 14:59 | |
| Benzo(g,h,i)perylene | mg/kg | ND | 0.0049 | 01/06/16 14:59 | |
| Benzo(k)fluoranthene | mg/kg | ND | 0.0049 | 01/06/16 14:59 | |
| Chrysene | mg/kg | ND | 0.0049 | 01/06/16 14:59 | |
| Dibenz(a,h)anthracene | mg/kg | ND | 0.0049 | 01/06/16 14:59 | |
| Fluoranthene | mg/kg | ND | 0.0049 | 01/06/16 14:59 | |
| Fluorene | mg/kg | ND | 0.0049 | 01/06/16 14:59 | |
| Indeno(1,2,3-cd)pyrene | mg/kg | ND | 0.0049 | 01/06/16 14:59 | |
| Naphthalene | mg/kg | ND | 0.0049 | 01/06/16 14:59 | |
| Phenanthrene | mg/kg | ND | 0.0049 | 01/06/16 14:59 | |
| Pyrene | mg/kg | ND | 0.0049 | 01/06/16 14:59 | |
| 2-Fluorobiphenyl (S) | %. | 77 | 38-110 | 01/06/16 14:59 | |
| p-Terphenyl-d14 (S) | %. | 93 | 32-111 | 01/06/16 14:59 | |

LABORATORY CONTROL SAMPLE: 1456359

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 2-Methylnaphthalene | mg/kg | .33 | 0.27 | 80 | 39-104 | |
| Acenaphthene | mg/kg | .33 | 0.24 | 73 | 43-108 | |
| Acenaphthylene | mg/kg | .33 | 0.25 | 76 | 44-110 | |
| Anthracene | mg/kg | .33 | 0.25 | 76 | 44-112 | |
| Benzo(a)anthracene | mg/kg | .33 | 0.31 | 92 | 43-124 | |
| Benzo(a)pyrene | mg/kg | .33 | 0.26 | 79 | 44-124 | |
| Benzo(b)fluoranthene | mg/kg | .33 | 0.27 | 82 | 44-123 | |
| Benzo(g,h,i)perylene | mg/kg | .33 | 0.25 | 74 | 44-118 | |
| Benzo(k)fluoranthene | mg/kg | .33 | 0.25 | 74 | 42-122 | |
| Chrysene | mg/kg | .33 | 0.31 | 93 | 44-124 | |
| Dibenz(a,h)anthracene | mg/kg | .33 | 0.25 | 76 | 44-119 | |
| Fluoranthene | mg/kg | .33 | 0.25 | 76 | 45-119 | |
| Fluorene | mg/kg | .33 | 0.26 | 78 | 44-113 | |
| Indeno(1,2,3-cd)pyrene | mg/kg | .33 | 0.25 | 75 | 44-119 | |
| Naphthalene | mg/kg | .33 | 0.26 | 78 | 42-103 | |
| Phenanthrene | mg/kg | .33 | 0.24 | 73 | 44-113 | |
| Pyrene | mg/kg | .33 | 0.30 | 90 | 45-123 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: Former Mud Run Gun Club
Pace Project No.: 50135772

LABORATORY CONTROL SAMPLE: 1456359

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 2-Fluorobiphenyl (S) | %. | | | 82 | 38-110 | |
| p-Terphenyl-d14 (S) | %. | | | 102 | 32-111 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1456360 1456361

| Parameter | Units | 50135772001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2-Methylnaphthalene | mg/kg | ND | .43 | .43 | 0.34 | 0.33 | 76 | 74 | 10-131 | 3 | 20 | |
| Acenaphthene | mg/kg | 0.094 | .43 | .43 | 0.30 | 0.26 | 47 | 40 | 25-117 | 11 | 20 | |
| Acenaphthylene | mg/kg | ND | .43 | .43 | 0.28 | 0.26 | 66 | 62 | 27-123 | 7 | 20 | |
| Anthracene | mg/kg | 0.13 | .43 | .43 | 0.31 | 0.36 | 42 | 53 | 20-123 | 14 | 20 | |
| Benzo(a)anthracene | mg/kg | 0.52 | .43 | .43 | 0.50 | 4.8 | -5 | 995 | 23-124 | 162 | 20 | M0,R1 |
| Benzo(a)pyrene | mg/kg | 0.54 | .43 | .43 | 0.47 | 3.0 | -17 | 571 | 23-120 | 146 | 20 | M0,R1 |
| Benzo(b)fluoranthene | mg/kg | 0.46 | .43 | .43 | 0.49 | 1.5 | 7 | 241 | 24-117 | 101 | 20 | M0,R1 |
| Benzo(g,h,i)perylene | mg/kg | 0.34 | .43 | .43 | 0.39 | 1.4 | 13 | 249 | 12-122 | 113 | 20 | M0,R1 |
| Benzo(k)fluoranthene | mg/kg | 0.44 | .43 | .43 | 0.45 | 0.81 | 3 | 86 | 14-123 | 57 | 20 | M0,R1 |
| Chrysene | mg/kg | 0.61 | .43 | .43 | 0.57 | 7.5 | -9 | 1610 | 22-124 | 172 | 20 | M0,R1 |
| Dibenz(a,h)anthracene | mg/kg | 0.15 | .43 | .43 | 0.28 | 0.92 | 32 | 180 | 26-113 | 105 | 20 | M0,R1 |
| Fluoranthene | mg/kg | 0.82 | .43 | .43 | 0.67 | 1.0 | -35 | 52 | 21-125 | 44 | 20 | M0,R1 |
| Fluorene | mg/kg | 0.059 | .43 | .43 | 0.30 | 0.28 | 55 | 52 | 19-127 | 4 | 20 | |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.30 | .43 | .43 | 0.37 | 0.71 | 16 | 95 | 15-121 | 63 | 20 | R1 |
| Naphthalene | mg/kg | ND | .43 | .43 | 0.33 | 0.30 | 73 | 67 | 15-125 | 9 | 20 | 1d |
| Phenanthrene | mg/kg | 0.53 | .43 | .43 | 0.45 | 1.0 | -17 | 111 | 10-139 | 75 | 20 | M0,R1 |
| Pyrene | mg/kg | 0.84 | .43 | .43 | 0.67 | 3.9 | -39 | 721 | 17-132 | 141 | 20 | M0,R1 |
| 2-Fluorobiphenyl (S) | %. | | | | | | 75 | 72 | 38-110 | | | |
| p-Terphenyl-d14 (S) | %. | | | | | | 74 | 85 | 32-111 | | | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

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**Pace Analytical Services, Inc.**
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

## QUALITY CONTROL DATA

Project: Former Mud Run Gun Club
Pace Project No.: 50135772

QC Batch: PMST/11531 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 50135772001, 50135772002, 50135772003, 50135772004

SAMPLE DUPLICATE: 1456354

| Parameter | Units | 50135784001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Moisture | % | 74.6 | 75.0 | 0 | 5 | |

SAMPLE DUPLICATE: 1456355

| Parameter | Units | 50135739002 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Moisture | % | 8.7 | 8.4 | 4 | 5 | |

**Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.**

## REPORT OF LABORATORY ANALYSIS

**Pace Analytical Services, Inc.**
Not NELAP Accredited
4860 Blazer Parkway
Dublin, OH 43017
(614)486-5421

**Pace Analytical Services, Inc.**
7726 Moller Road
Indianapolis, IN 46268
(317)228-3100

# QUALIFIERS

Project: Former Mud Run Gun Club
Pace Project No.: 50135772

## DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## ANALYTE QUALIFIERS

| | |
|---|---|
| 1d | Due to the extract's physical characteristics, the analysis was performed at dilution. |
| 2d | RPD is outside control limit due to sample non-homogeneity. MJC 01-11-16 |
| M0 | Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits. |
| R1 | RPD value was outside control limits. |

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(317)228-3100

## METHOD CROSS REFERENCE TABLE

Project: Former Mud Run Gun Club
Pace Project No.: 50135772

| Parameter | Matrix | Analytical Method | Preparation Method |
|---|---|---|---|
| 6010 MET ICP | Solid | SW-846 6010B | SW-846 3050B |
| 8270 MSSV PAH by SIM | Solid | SW-846 8270C | SW-846 3546 |

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Former Mud Run Gun Club
Pace Project No.: 50135772

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **50135772001** | **SD-11** | EPA 3050 | MPRP/19325 | EPA 6010 | ICP/23549 |
| **50135772002** | **SD-12** | EPA 3050 | MPRP/19325 | EPA 6010 | ICP/23549 |
| **50135772003** | **SD-13** | EPA 3050 | MPRP/19325 | EPA 6010 | ICP/23549 |
| **50135772004** | **SD-14** | EPA 3050 | MPRP/19325 | EPA 6010 | ICP/23549 |
| **50135772001** | **SD-11** | EPA 3546 | OEXT/42014 | EPA 8270 by SIM | MSSV/19959 |
| **50135772002** | **SD-12** | EPA 3546 | OEXT/42014 | EPA 8270 by SIM | MSSV/19959 |
| **50135772003** | **SD-13** | EPA 3546 | OEXT/42014 | EPA 8270 by SIM | MSSV/19959 |
| **50135772004** | **SD-14** | EPA 3546 | OEXT/42014 | EPA 8270 by SIM | MSSV/19959 |
| **50135772001** | **SD-11** | ASTM D2974-87 | PMST/11531 | | |
| **50135772002** | **SD-12** | ASTM D2974-87 | PMST/11531 | | |
| **50135772003** | **SD-13** | ASTM D2974-87 | PMST/11531 | | |
| **50135772004** | **SD-14** | ASTM D2974-87 | PMST/11531 | | |

Pace Analytical®
www.pacelabs.com

# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of 1

1964619

**Section A** Required Client Information:

Company: PANDE Environmental
Address: 4100 Horizons Dr.
Columbus, OH 43220
Email To: nvallera@pandeenvironmental.com
Phone: 614-444-8078 Fax:
Requested Due Date/TAT:

**Section B** Required Project Information:

Report To: Nick Vallera
Copy To:
Purchase Order No.:
Project Name: Former Mud Run Gun Club
Project Number:

**Section C** Invoice Information:

Attention: Nick Vallera
Company Name:
Address:
Pace Quote Reference: Std pricing
Pace Project Manager: Ken Hunt
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☒ OTHER VAP

Site Location STATE: OH

**Section D** Required Client Information

**SAMPLE ID** (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

**Matrix Codes** (MATRIX / CODE)

| | |
|---|---|
| Drinking Water | DW |
| Water | WT |
| Waste Water | WW |
| Product | P |
| Soil/Solid | SL |
| Oil | OL |
| Wipe | WP |
| Air | AR |
| Tissue | TS |
| Other | OT |

| ITEM # | SAMPLE ID | MATRIX CODE (see valid codes to left) | SAMPLE TYPE (G=GRAB C=COMP) | COLLECTED: COMPOSITE START DATE | COMPOSITE START TIME | COMPOSITE END/GRAB DATE | COMPOSITE END/GRAB TIME | SAMPLE TEMP AT COLLECTION | # OF CONTAINERS | Preservatives: Unpreserved | $H_2SO_4$ | $HNO_3$ | HCl | NaOH | $Na_2S_2O_3$ | Methanol | Other | Analysis Test Y/N: Lead | PAH | Residual Chlorine (Y/N) | Pace Project No./ Lab I.D. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SD-11 | SL | G | | | 12-30-15 | 10:25 | | 2 | X | | | | | | | | Y | X | | -001 |
| 2 | SD-12 | " | " | | | " | 10:45 | | 2 | X | | | | | | | | Y | X | | -002 |
| 3 | SD-13 | " | " | | | " | 11:20 | | 2 | X | | | | | | | | Y | X | | -003 |
| 4 | SD-14 | " | " | | | " | 11:60 | | 2 | X | | | | | | | | Y | Y | | -004 |
| 5 | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | |

5013577d

| ADDITIONAL COMMENTS | RELINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME | SAMPLE CONDITIONS: Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Jason Martin / PANDE | 12-30-15 | 5:00 | [signature] | 12-31-15 | 10:25 | | | | |
| | | | | Fedex (MB 1/5/16) | | | | | | |
| | Fedex (1/5/16 MB) | 1/5/16 | 9:30 | Marcia Bennett/Pace | 1/5/16 | 9:30 | 0.8 | Y | N | |

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jason Martin

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 12-30-15

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

# Sample Condition Upon Receipt

Pace Analytical

Client Name: Pandey Env. Project # 50135772

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 6612586445 31

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☑ no

Date/Time 5035A kits placed in freezer: _____

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☑ Other Ziploc

Thermometer 1 2 3 4 5 6 A B C D E F Type of Ice: Wet Blue None ☑ Samples on ice, cooling process has begun

Cooler Temperature (Initial/Corrected) 0.8°C Ice Visible in Sample Containers: ☐ yes ☑ no

Temp should be above freezing to 6°C

Comments:

Date and initials of person examining contents: MB 1/5/16

| | | | | |
|---|---|---|---|---|
| Are samples from West Virginia? Document any containers out of temp. | ☐Yes | ☑No | | 1. |
| Chain of Custody Present: | ☑Yes | ☐No | ☐N/A | 2. |
| Chain of Custody Filled Out: | ☑Yes | ☐No | ☐N/A | 3. |
| Chain of Custody Relinquished: | ☑Yes | ☐No | ☐N/A | 4. not relinquished by Pace Dublin (MB) |
| Sampler Name & Signature on COC: | ☑Yes | ☐No | ☐N/A | 5. |
| Short Hold Time Analysis (<72hr): | ☐Yes | ☐No | ☑N/A | 6. |
| Rush Turn Around Time Requested: | ☐Yes | ☐No | ☑N/A | 7. |
| Containers Intact: | ☑Yes | ☐No | ☐N/A | 8. |
| Sample Labels match COC: -Includes date/time/ID/Analysis | ☑Yes | ☐No | ☐N/A | 9. |
| All containers needing acid/base pres. have been checked? exceptions: VOA, coliform, TOC, O&G. All containers needing preservation are found to be in compliance with EPA recommendation (<2, >9, >12) unless otherwise noted. | ☐Yes | ☐No | ☑N/A | 10 (Circle) HNO3 H2SO4 NaOH NaOH/ZnAc |
| Residual Chlorine Check (SVOC 625 Pest/PCB 608) | (NA) | | | 11. Present Absent |
| Residual Chlorine Check (Total/Amenable/Free Cyanide) | (NA) | | | 12. Present Absent |
| Headspace in VOA Vials ( >6mm): | ☐Yes | ☐No | ☑N/A | 13 |
| Headspace Wisconsin Sulfide | ☐Yes | ☐No | (NA) | 14 |
| Trip Blank Present: | ☐Yes | ☐No | ☑N/A | 15 |
| Trip Blank Custody Seals Present | ☐Yes | ☐No | ☑N/A | |
| **Project Manager Review** | | | | |
| Samples Arrived within Hold Time: | ☑Yes | ☐No | ☐N/A | 15. |
| Sufficient Volume: | ☑Yes | ☐No | ☐N/A | 16. |
| Correct Containers Used: | ☑Yes | ☐No | ☐N/A | 17. |

**Client Notification/ Resolution:** Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Kenneth Hunt Date: 1/5/16

Form F-IN-Q-290-rev.09, 13Oct2015

# Sample Container Count

CLIENT: Pandey Env.

COC PAGE 1 of 1
COC ID# 1964619

Project # 50135772

| Sample Line Item | DG9H | AG1U | WGFU | AG0U | R | 4 / 6 | BP2N | BP2U | BP2S | BP3N | BP3U | BP3S | AG3S | AG1H | BP3C | BP1U | SP5T | AG2U | pH <2 | pH >9 | pH>12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 2 | | | | | | | | | | | | | | | | | | |
| 2 | | | 2 | | | | | | | | | | | | | | | | | | |
| 3 | | | 2 | | | | | | | | | | | | | | | | | | |
| 4 | | | 2 | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | |

Container Codes

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DG9H | 40mL HCL amber voa vial | AG0U | 100mL unpreserved amber glass | BP1N | 1 liter HNO3 plastic | DG9P | 40mL TSP amber vial |
| AG1U | 1liter unpreserved amber glass | AG1H | 1 liter HCL amber glass | BP1S | 1 liter H2SO4 plastic | DG9S | 40mL H2SO4 amber vial |
| WGFU | 4oz clear soil jar | AG1S | 1 liter H2SO4 amber glass | BP1U | 1 liter unpreserved plastic | DG9T | 40mL Na Thio amber vial |
| R | terra core kit | AG1T | 1 liter Na Thiosulfate amber glass | BP1Z | 1 liter NaOH, Zn, Ac | DG9U | 40mL unpreserved amber vial |
| BP2N | 500mL HNO3 plastic | AG2N | 500mL HNO3 amber glass | BP2A | 500mL NaOH, Asc Acid plastic | SP5T | 120mL Coliform Na Thiosulfate |
| BP2U | 500mL unpreserved plastic | AG2S | 500mL H2SO4 amber glass | BP2O | 500mL NaOH plastic | JGFU | 4oz unpreserved amber wide |
| BP2S | 500mL H2SO4 plastic | AG2U | 500mL unpreserved amber glass | BP2Z | 500mL NaOH, Zn Ac | U | Summa Can |
| BP3N | 250mL HNO3 plastic | AG3U | 250mL unpreserved amber glass | AF | Air Filter | VG9H | 40mL HCL clear vial |
| BP3U | 250mL unpreserved plastic | BG1H | 1 liter HCL clear glass | BP3C | 250mL NaOH plastic | VG9T | 40mL Na Thio. clear vial |
| BP3S | 250mL H2SO4 plastic | BG1S | 1 liter H2SO4 clear glass | BP3Z | 250mL NaOH, Zn Ac plastic | VG9U | 40mL unpreserved clear vial |
| AG3S | 250mL H2SO4 glass amber | BG1T | 1 liter Na Thiosulfate clear glass | C | Air Cassettes | VSG | Headspace septa vial & HCL |
| AG1S | 1 liter H2SO4 amber glass | BG1U | 1 liter unpreserved glass | DG9B | 40mL Na Bisulfate amber vial | WGFX | 4oz wide jar w/hexane wipe |
| BP1U | 1 liter unpreserved plastic | BP1A | 1 liter NaOH, Asc Acid plastic | DG9M | 40mL MeOH clear vial | ZPLC | Ziploc Bag |

| Sample Number / Document ID | Analyte / Parameter Group | Method |
|---|---|---|
| 50133848012 through 50133848017 | TCLP RCRA metals | 1311/7470/6040 |

8. The information, data, documents and reports identified under this affidavit are true, accurate and complete.

Further affiant sayeth naught.

Signature of Affiant

Sworn to before me and subscribed in my presence this 29th day of Dec., 2015

Notary Public

SHARON M. STRANGE
NOTARY PUBLIC
SEAL
MY COMMISSION EXPIRES 11-05-16
MARION COUNTY, STATE OF INDIANA

50133848

# Affidavit of VAP Certified Laboratory

*[For VAP certified laboratories to attest to "certified data" under OAC 3745-300-13(N) and OAC 3745-300-04(A). Note that Ohio EPA is to receive a legible copy of the CL's affidavit. The entity that received the CL's analytical report under affidavit may retain the CL's affidavit original.]*

State of Indiana )
) ss:
County of Marion )

I, Lyle Cable, being first duly sworn according to law, state that, to the best of my knowledge, information and belief:

1. I am an adult over the age of eighteen years old and competent to testify herein.

2. I am employed by Pace Analytical Services - Indianapolis ("the laboratory") as Quality Assurance Analyst. I am authorized to submit this affidavit on behalf of the laboratory.

3. The purpose of this submission is to support a request for a no further action letter or other aspects of a voluntary action, under Ohio's Voluntary Action Program (VAP) as set forth in Ohio Revised Code Chapter 3746 and Ohio Administrative Code (OAC) Chapter 3745-300.

4. Pace Analytical Services - Indianapolis performed analyses for Pandey Environmental, LLC. for a voluntary action at property known as Former Mud Run Gun Club.

5. This affidavit applies to and is submitted with the following information, data, documents or reports for the property:

| Document ID | Date of Document |
|---|---|
| 50135772 | January 12, 2016 |

6. Pace Analytical Services - Indianapolis was a VAP certified laboratory pursuant to OAC 3745-300-04 when it performed the analyses referenced herein.

7. All analyses under this affidavit consist of VAP "certified data" as described in OAC 3745-300-04(A) - - unless paragraph b., below, specifies the exceptions:

   a. The laboratory performed the analyses within its current VAP certification, number CL0065. The laboratory was certified for each analyte, parameter group and method used at the time that it performed the analyses – see Method Cross Reference Table. The analyses were performed consistent with the laboratory's standard operating procedures and quality assurance program plan as approved under OAC 3745-300-04.

   b. Exceptions, if any: Any soil moisture performed by method ASTM D2974-87 used for dry weight correction of data or any analysis used for batch QC on matrix spikes, matrix spike duplicates or sample duplicates that are not associated with the referenced project number identified in item 5 above.

8. The information, data, documents and reports identified under this affidavit are true, accurate and complete.

Further affiant sayeth naught.

Signature of Affiant

Sworn to before me and subscribed in my presence this 22nd day of Jan., 2016.

Notary Public


50135772

# APPENDIX B

Field Sheets & Soil Bore Logs

PANDEY
ENVIRONMENTAL, LLC
4100 Horizons Drive Suite, 205
Columbus, Ohio 43220 614-444-8078

# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-1 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brown SILTY CLAY, little sand, medium stiff, moist. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:
TOTAL DEPTH: 2

PANDEY
ENVIRONMENTAL, LLC
4100 Horizons Drive Suite, 205
Columbus, Ohio 43220 614-444-8078

# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-2 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brown SILTY CLAY, medium stiff, slightly moist. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:
TOTAL DEPTH: 2

PANDEY
ENVIRONMENTAL, LLC
4100 Horizons Drive Suite, 205
Columbus, Ohio 43220 614-444-8078

# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-3 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brown SILTY CLAY, little gravel, trace sand, stiff, dry. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:
TOTAL DEPTH: 2

PANDEY ENVIRONMENTAL, LLC

4100 Horizons Drive Suite, 205

Columbus, Ohio 43220 614-444-8078

# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-4 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brown SILTY CLAY, trace sand, soft, moist. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:

TOTAL DEPTH: 2

PANDEY
ENVIRONMENTAL, LLC
4100 Horizons Drive Suite, 205
Columbus, Ohio 43220 614-444-8078

# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-5 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brown SILTY CLAY, medium stiff, slightly moist. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:
TOTAL DEPTH: 2

PANDEY
ENVIRONMENTAL, LLC
4100 Horizons Drive Suite, 205
Columbus, Ohio 43220 614-444-8078

# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-6 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brownish-red SILTY CLAY, trace wood/root fragment, trace sand, medium stiff, slightly moist. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:
TOTAL DEPTH: 2

PANDEY ENVIRONMENTAL, LLC

4100 Horizons Drive Suite, 205

Columbus, Ohio 43220 614-444-8078

# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-7 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brown SILTY CLAY, trace sand, soft, moist. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:

TOTAL DEPTH: 2

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# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-8 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brown SILTY CLAY, trace sand, medium stiff, slightly moist. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:
TOTAL DEPTH: 2

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# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-9 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brown SILTY CLAY, trace gravel, stiff, slightly moist. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:
TOTAL DEPTH: 2

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# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-10 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brown SILTY CLAY, little sand, medium stiff, slightly moist. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:
TOTAL DEPTH: 2

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# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-11 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brownish-red SILTY CLAY, little sand, medium stiff, slightly moist. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:
TOTAL DEPTH: 2

# ENVIRONMENTAL SOIL BORE LOG

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| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-12 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brown SILTY CLAY, little gravel, stiff, dry. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:
TOTAL DEPTH: 2

# ENVIRONMENTAL SOIL BORE LOG

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| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-13 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brown SILTY CLAY, little sand, medium stiff, slightly moist. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:
TOTAL DEPTH: 2

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# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-14 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brown SILTY CLAY, little sand, medium stiff, moist. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:
TOTAL DEPTH: 2

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# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-15 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brown-gray SILTY CLAY, trace sand, little wood fragments (burned wood pieces), slightly moist. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:
TOTAL DEPTH: 2

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# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-16 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brown SILTY CLAY, trace f.g. sand, slightly moist, trace lead shot throughout the 0-6" interval. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:

TOTAL DEPTH: 1

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# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-17 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brown SILTY CLAY, little f.g. sand, slightly moist. Clay piegon pieces & lead shot throughout entire 0-1' interval. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:
TOTAL DEPTH: 1

# ENVIRONMENTAL SOIL BORE LOG

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| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-18 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brown SILTY CLAY, very moist, little f.g. sand, soft. Sparse clay pigeon shards and lead shot between 0-6" interval. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes: Duplicate collected, "SB-18A"
TOTAL DEPTH: 1

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# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-19 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brown SILTY CLAY, very moist, soft, little f.g. sand. Clay pigeon & lead shot throughout sparsely. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:

TOTAL DEPTH: 1

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# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-20 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brown SILTY CLAY, trace sand, medium stiff, moist. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:
TOTAL DEPTH: 1

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# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-21 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brown SILTY CLAY, little sand, medium stiff, slightly moist. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:

TOTAL DEPTH: 1

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# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-22 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brown SILTY CLAY, trace sand, soft, moist. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:

TOTAL DEPTH: 1

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# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-23 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | | | | | NA | 100 | Brown SILTY CLAY with sand, slightly moist, stiff, trace gravel. |
| | | | | 2' | | | |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:

TOTAL DEPTH: 1

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# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-24 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | ■ | ■ | | | NA | 100 | Brown SILTY CLAY, some sand, slightly moist. Sparse lead shot from 0-2' (very sparse towards 1-2'). |
| | ■ | ■ | ■ | 2' | NA | 100 | 2.5 to 3 - Light brown & gray SILTY CLAY, stiff, trace sand, dry. |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:
TOTAL DEPTH: 3

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# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-25 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | ■ | ■ | | | NA | 100 | Brown SILTY CLAY, little sand, slightly moist. Orange clay pigeon pieces and lead shot observed from approximately 0-1'. |
| | ■ | ■ | ■ | 2' | NA | 100 | 2 to 3 - Light brown SILTY CLAY, little sand, stiff, moist. |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:
TOTAL DEPTH: 3

# ENVIRONMENTAL SOIL BORE LOG

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| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-26 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | ■ | ■ | | | NA | 100 | 0 to 1 - Brown SILTY CLAY, some sand, slightly moist. Sparse lead shot. 1 to 2 - Light brown SILTY CLAY, stiff dry, little sand. No lead shot or clay pigeon pieces observed. |
| | ■ | ■ | ■ | 2' | NA | 100 | 2 to 3 - Light brown SILTY CLAY, stiff dry, little sand. No lead shot or clay pigeon pieces observed. |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:
TOTAL DEPTH: 3

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# ENVIRONMENTAL SOIL BORE LOG

| | |
|---|---|
| Site: Former Mud Run Gun Club | Bore ID: SB-27 |
| Date Drilled: 12/04/15 | Drill Rig: 7822 DT GeoProbe |
| Weather: 40, overcast | Auger Diam: N/A |
| Co-located MW: | Sampler Type: Dual-tube acetate liner |
| Location: | Logged By: N. Vallera |
| | Sampler Size: 4' |

| Auger | Split Spoon | Soil Sample | Sample Sent | Depth | VOC (ppm) | % Recovery | Description |
|---|---|---|---|---|---|---|---|
| | ■ | ■ | | | NA | 100 | 0 to 1.1 - Brown SILTY CLAY, little sand, slightly moist, orange clay pigeon pieces and lead shot throughout.<br>1.1 to 2 - Dark brown SILTY CLAY, moist, medium stiff. |
| | ■ | ■ | ■ | 2' | NA | 100 | 2 to 3 - Light brown SILT CLAY, slightly moist, medium stiff. |
| | | | | 4' | | | |
| | | | | 6' | | | |
| | | | | 8' | | | |
| | | | | 10' | | | |
| | | | | 12' | | | |
| | | | | 14' | | | |

Notes:
TOTAL DEPTH: 3

# APPENDIX C

Resumes of Environmental Professionals

# *Atul Pandey, P.E., C.P., M.S.*

***President***

Mr. Pandey is the President and CEO of PANDEY Environmental, LLC. His area of expertise includes site assessment, remediation, brownfield redevelopment, and urban conservation. Mr. Pandey has more than 20 years of experience performing Phase I, II, and III site assessments, underground storage tank removals, closure, assessment, and corrective action, RCRA closures and corrective actions, Ohio EPA Voluntary Action Program No Further Action Letters, Clean Ohio Fund Site Assessments and general site assessment and remediation tasks. Clients have included municipalities, federal and state agencies, commercial and industrial realtors, bankers, insurance companies and real estate developers.

Mr. Pandey has worked for Ohio EPA, where he developed the Ohio EPA VAP Generic Leaching Guidance Document used by the Voluntary Action Program. He also worked in Ohio EPA's Southwest District Office of Division of Solid and Infectious Waste Management, located in Dayton, Ohio.

Prior to forming PANDEY Environmental, LLC in 2002, Mr. Pandey technically and administratively supervised a multi-disciplinary team of seven professionals at a private consulting firm. Projects included Phase I and II environmental site assessments, underground storage tank closures, corrective actions, risk assessments, RCRA closures and corrective actions, landfill groundwater monitoring and assessment programs, and Voluntary Action Program projects.

Mr. Pandey has also authored multiple publications.

**EDUCATION:**

University of Cincinnati, Ohio
Master of Science in Environmental Engineering, 1993
Thesis Title: Effect of Swelling Percentages on the Shear Strength of Compacted Clay Liners

University of Delhi, India
Bachelor of Science in Civil Engineering, 1991
Emphasis: Environmental Engineering

**CERTIFICATIONS**

- Registered Professional Engineer, States of Ohio and South Carolina, Environmental Engineering
- State of Ohio Voluntary Action Program, Certified Professional, Certification #CP224
- Qualified as an Environmental Professional under "All Appropriate Inquires" (AAI) Rule
- 40 hour HAZWOPER certified (29 CFR 1910.120)

**CAREER HIGHLIGHTS/ACCOMPLISHMENTS**

- Issued twenty-one (21) VAP NFA letters, twenty (20) of which have received Covenants Not to Sue (one NFA was recently issued and the CNS is pending Ohio EPA review).
- Prepared five (5) successful Urban Setting Designation Requests.

- Authored Ohio EPA VAP Generic Leaching Guidance Document; this document is currently being used in the state of Ohio by VAP Certified Professionals as a standard to evaluate leaching of vadose zone contaminants under VAP and RCRA programs.
- Selected by the Ohio EPA in April 2005 to represent all Ohio EPA Certified Professionals (Brownfield Licensed Professionals) to the Hazardous Waste division of the Ohio EPA. This prestigious recognition was made due to extensive experience with multiple programs of the Ohio EPA including the Voluntary Action Program (Brownfields Program), and programs under the Division of Hazardous Waste and the Division of Solid Waste.

**PROFESSIONAL EXPERIENCE**

*10/02 to present* *President, PANDEY Environmental, LLC*

Mr. Pandey founded PANDEY Environmental, LLC to provide fast, reliable, and expert environmental site assessment services to commercial and industrial clients at a competitive price. Services provided by the consulting company include but are not limited to Phase I, II Environmental Site Assessments, Underground Storage Tank Removal, Closure, and Corrective Action, Voluntary Action Program Site Assessments, Clean Ohio Fund Application Preparation and Site Assessments, Expert Witness Services, Risk Assessment Services, Fate and Transport Modeling, and VAP Certified Professional Services.

*11/98 to 9/02* *Vice President/Senior Engineer, Smalley & Associates, Inc.*

Duties and responsibilities included supervising a multi-disciplinary team of 7 professionals that were involved in various projects ranging from Phase I and II environmental site assessment, underground storage tank closure, corrective action, and risk assessment, RCRA closures and corrective action, landfill groundwater monitoring and assessment programs, and Voluntary Action Program projects; Also responsible for professional development of these individuals.

Duties also included managing the operations of a full service Ohio EPA VAP certified analytical laboratory and drilling crew. Additional responsibilities included business development and client interface for Ohio VAP and RCRA projects.

In this position, issued eleven (11) No Further Action letters under Voluntary Action Program to Ohio EPA for the following properties; all of these properties have successfully obtained VAP Covenants Not to Sue.

*11/96 to 11/98* *Environmental Engineer, Ohio EPA Voluntary Action Program*

General responsibilities included assessment of No Further Action Letters prepared by Certified Professionals conducting voluntary actions at properties with hazardous substances and petroleum contamination; determining RCRA corrective action eligibility of the properties for the Voluntary Action Program, and assessing leaching of petroleum constituents and other contaminants; providing technical assistance to Certified Professionals, volunteers, and other parties interested in voluntary action; managing field audits of properties that have received Covenants Not to Sue.

At the Ohio EPA's Division of Solid and Infectious Waste Management, general responsibilities included reviewing and evaluating Permit to Install applications and detail plans for all types of solid and

infectious waste facilities making recommendations for approval or denial; directing the inspectors in conducting the solid waste compliance monitoring program; providing technical assistance to local governments , citizens, industry, and others regarding solid and infectious waste management; also spoke at public meetings on solid waste permitting issues.

*1/92 to 11/96 Project Engineer, Science Applications International Corporation*

Responsibilities as a project engineer included project management and team support, budget control, report preparation, negotiations with state and federal regulatory agencies, vendor and consultant oversight, and working on site remediation and compliance issues. Select project experience includes:

- Identified, screened, and evaluated remedial technologies for RCRA CMS or CERCLA RI/FS; conducted the same for four solid waste management units at Portsmouth US DOE site with soil and/or groundwater contamination; also negotiated corrective action scope with regulatory agencies and co-authored the CMS reports.
- Managed and supervised a $500,000 contract for conducting a pilot scale treatability study of measuring enhancements to groundwater flow using an innovative technology (pneumatic fracturing) ; developed work plan, support plans (HSP, QAPjP, SAP), and summary report.
- Managed a $200,000 project dealing with a field and laboratory investigation to establish adsorptive and natural attenuation characteristics at a superfund site.
- Developed a database to facilitate air emissions reporting and permitting for over 250 sources in accordance with Title V requirements of the Clean Air Act for a synthetic organic chemical manufacturer in southern Ohio; created data architecture, conducted the beta-test on the database software, and created chemical process-specific user's guides.
- Facilitated compliance with RCRA Subtitle CC regulations at a chemical manufacturer's facility; also prepared the SARA 313, fee emission, and Title V reports for the facility.
- Served as Technical Advisor to the State of Ohio, Environmental Protection Agency's modeling subgroup of the generic standards subcommittee charged with the development of generic deep soil cleanup levels across the state in accordance with the requirements of Senate Bill 221 (Brownfields); conducted all of the modeling on this project using an unsaturated soil zone leaching model (SESOIL); also authored the associated technical guidance documents.
- Constructed and calibrated groundwater flow models using MAGNAS3 and FRAC3DVS codes for groundwater plumes at the US DOE site; evaluated remedial alternatives with these models.

**PUBLICATIONS**

Pandey, A., Hetrick, D.M., and Khan, A., Innovative Approach Proposed for Evaluating Risks due to Soil Contamination, SESOIL - A Decade, Amherst Scientific Publishers, 1996.

Pandey, A., Cherry, E., Steigerwald, V., and Pickrel, C., Groundwater Protection and Soil Remediation, Fifth Annual Business and Industry's Environmental Symposium - Conference Proceedings, Cincinnati, 1996.

Pandey, A. et al., Innovative Approach Developed for Deriving Leach-Based Soil Cleanup Values Protective of Groundwater, 12th Annual Conference on Contaminated Soils, University of Massachusetts at Amherst, 1997.

Hetrick, D. and Pandey, A., A methodology for establishing cleanup objectives in the saturated soil zone using sensitivity and uncertainty analysis for chemical fate and transport, Journal of Soil Contamination, 8(5):559-576, 1999

**ENGINEERING & MODELING SOFTWARE**

Proficient with a wide range of environmental modeling software including MODFLOW, MAGNAS3, FRAC3DVS, MT3D, SAS, SURFER, GeoEAS, HELP, SESOIL, CHEMFLO, VLEACH, RITZ, PESTAN, Summers, AT123D, EnCompass, GARDS, SIMS, HonRuler, TANKS, and STARSHIP (Title V); advanced knowledge of Microsoft EXCEL and SURFER programs.

Also taught 3-day modeling course entitled “Application of SESOIL in Ohio EPA’s Voluntary Action Program” in June, 1999 to Certified Professionals and other consultants.

# *Jason Martin*

***Project Manager***

Mr. Martin performs Phase I and II investigations and remedial oversight. He also performs Operation & Maintenance activities. He is particularly proficient in field aspects of brownfield assessment and remediation where he oversees subcontractors, works closely with property owners and clients, and ensures that project objectives are met.

**EDUCATION:**

Youngstown State University, Youngstown, Ohio
Bachelor of Arts, Major in Geology; Minor in Religious Studies, 2005

**SPECIALIZED TRAINING/ PROFESSIONAL AFFILIATIONS:**

- Qualified as an Environmental Professional under "All Appropriate Inquires" (AAI) Rule
- 40 Hour OSHA HAZWOPER Training
- 8 Hour OSHA HAZWOPER Supervisor Training
- Ohio EPA Vapor Intrusion Training
- Ohio EPA Groundwater Sampling Training
- Ohio EPA Soil Sampling Training

**CAREER HIGHLIGHTS/ACCOMPLISHMENTS**

- Provided assistance in project management and field work on the Gowdy Field project that was granted the Phoenix Award for EPA Region 5 in April of 2011 for recognition of excellence in brownfield redevelopment.
- Worked on 21 sites under the Ohio Voluntary Action Program (VAP), 9 of which subsequently pursued a No Further Action Letter (NFA). Work included Phase I and II Environmental Site Assessments, risk assessment, demonstration of background levels, contaminant transport modeling, site specific remediation, and No Further Action Letter issuances.
- Assumed project management responsibilities on a former landfill site that required the installation of a clay cap, an active and passive gas extraction system, a vapor barrier under the building pad, issuance of a No Further Action Letter, and continued operation and maintenance on site that includes continual monitoring of landfill gas sensors, quarterly calibration of gas sensors, and routine inspection of clay cap integrity and individual gas extraction wells.
- Provided oversight for the installation and continued monitoring of multiple geotextile vapor barriers with spray-on sealant at a mixed-use site contaminated with solvents. Monitoring activities include quarterly air samples at vent stacks and analyzing of data to ensure the efficacy of the vapor barrier installation.
- Participated in the design, installation, and ongoing implementation of an automated soil vapor extraction system at a site contaminated with solvents. Included the measurement of vacuum influence at various vapor pin points near extraction wells to determine system efficacy.
- Provided oversight for the decommissioning of sludge lagoons that included the development and implementation of a site specific Storm Water Pollution Prevention Plan (SWP3).

- Performed sampling of potentially hazardous materials contained within storage bins in a building utilized for historic glass manufacturing.
- Provided assistance to asbestos abatement oversight on 2 projects under the Ohio Voluntary Action Program (VAP) with Clean Ohio funds.
- Completed Area Wide Assessments to identify brownfields in a community that produced multiple Phase I and Phase II environmental site assessments.
- Participated in or completed multiple Phase I environmental site assessments following ASTM and/or VAP guidelines.
- Participated in or completed multiple Phase II environmental site assessments following ASTM and/or VAP guidelines.
- Provided oversight of removal of Underground Storage Tanks, associated testing for environmental contamination, and preparation of appropriate closure reports to the Bureau of Underground Storage Tanks and Regulations (BUSTR); all of which have been awarded a No Further Action (NFA) letter.
- Participated in award of task order contract to perform monitoring well maintenance for the US Navy at the Naval Weapons Station in Charleston, SC.
- Performed on site supervision at the Naval Weapons Station in Charleston, SC. of miscellaneous monitoring well maintenance activities including: the installation of 141 protective bollards, scrape and re-paint 27 protective bollards and 17 well casings, repair/replaced 8 well casings, updated and installed 185 well information tags, and abandonment of 2 monitoring wells and 1 deep drinking water well.
- Performed on site monitoring well sampling at the Naval Weapons Station in Charleston, SC. which required the collection of samples at 52 monitoring wells across the base.
- Implemented an in-situ remediation plan on a former industrial plant contaminated with tetrachloroethene, trichloroethene, and vinyl chloride using bioaugmentation cultures in conjunction with vegetable oil as a food source in well injections to degrade high concentrations of contaminants.
- Implemented an in-situ remediation plan on a former industrial plant contaminated with tetrachloroethene, trichloroethene, and vinyl chloride using sodium permanganate well injections as an oxidizing agent.
- Implemented an in-situ remediation plan on a lumber yard contaminated with a creosote spill using potassium permanganate slurry as an oxidizing agent.
- Implemented an in-situ remediation plan on a former rail yard contaminated with carbon tetrachloride using 3-D Microemulsion (3DMe) as an anaerobic treatment.
- Implemented a Spill Prevention Control and Countermeasures (SPCC) plan at the Time Warner Regional Headquarters in Columbus, Ohio that involves monthly inspections and yearly training of on-site and associated personnel.
- Participated in the acquisition and future verifications of an Urban Setting Designation (USD) for the entire City of Cleveland.
- Participated in the statistical determination of background levels on a site with arsenic levels exceeding regulatory guidelines. Successfully demonstrated that these levels were naturally occurring and not a result of activities on the site, thus negating the need for risk assessment and costly cleanup.

- Participated in Phase I, Phase II, and data collection / organization activities for submission into the Clean Ohio Revitalization Fund program for multiple projects.
- Performed explosive gas monitoring at a historic city landfill that is within its long-term monitoring closure process.
- Provided oversight on various soil excavation projects that included the removal and backfill of incinerator ash waste from an active hospital site.
- Proficient in the use of the following field equipment: Soil vapor pin installation, SUMMA canister soil gas and air sampling, peristaltic pump, bladder pump, inertia pump, flow though sonde active groundwater parameter monitoring, various groundwater parameter sampling equipment (i.e. turbidimeter, conductivity/temperature/pH meter), Photo Ionization Detector (PID), Multi-gas meter, bailer groundwater sampling, oil skimming using the Abanaki PetroXtractor, Laser Level for monitoring well and groundwater elevations.

**PROFESSIONAL EXPERIENCE**

*9/07 to present* *Environmental Scientist, PANDEY Environmental, LLC*

Duties include conducting ASTM E1527 and VAP Phase I and II Property assessments, environmental sampling, and supervising subcontractors utilized for site investigation and remediation activities.

Specific activities include soil boring, monitoring well, and gas extraction well installations, soil excavations, demolition oversight, skimming oil from groundwater, vapor barrier installations, active and passive gas extraction systems (hazardous gas, hydrogen sulfide and methane), gas monitoring sensor installations and maintenance, underground storage tank removals, in-site groundwater remedial injections, risk assessment and modeling, and soil gas sampling.

Other duties include Spill Prevention Control and Countermeasures (SPCC) plan implementation and monthly SPCC inspections, preparation of figures and maps using Auto CAD and GIS, and preparation of plans and reports.

*5/03 to 9/07* *Sales Associate/Phone Technician, Sprint*

Worked with individual and business clients to develop suitable usage plans and proper cellular phone(s) to fit needs. In the role of technician, performed duties that included: repair and replacement of multiple models of cellular phones, management of the store's inventory including incoming/outgoing product, ordering and maintaining of store supplies, communication of various business and repair procedures to sales staff, and maintaining store appearance according to action plan from management.

*2/99 to 5/03* *Sales Associate, Circuit City*

Worked with customer clientele to establish appropriate needs for various products including: computers and computer related products, car audio, home audio, cellular phones, and home video. Provided technical support for computers and computer related products by phone and on site calls.

From 11/96-12/98, employed as sales associate at Sun TV. Provided customer service, sales, and technical support on computers and computer related products. Was responsible for the maintenance and upkeep of the computer department under the department manager.

**ENGINEERING & MODELING SOFTWARE**

Knowledge of Microsoft Office (including Word, Outlook, Excel, PowerPoint) and Microsoft Access database management. Basic usage of GIS (ESRI ArcMap) and topographic map generation software. Experience with topographic software, Pro UCL calculation software, Seasonal Soil compartment model (SESOIL) for water, sediment, and pollutant transport, and AutoCAD software.

# *Nick Vallera*

***Environmental Scientist***

Mr. Vallera performs Phase I and II investigations and remedial oversight. He also performs Operation & Maintenance activities. He is proficient in field aspects of environmental site assessment and remediation where he performs multiple types of sampling, works closely with property owners and clients, and ensures that project objectives are met. He is also proficient in the technical writing of environmental assessment and regulatory agency reports.

**EDUCATION:**

The Ohio State University, Columbus, Ohio
Master of Education, Major in Secondary Science Education; 2012

The Ohio State University, Columbus, Ohio
Bachelor of Arts, Major in Geology; 2011

**SPECIALIZED TRAINING/ PROFESSIONAL AFFILIATIONS:**

- Ohio EPA VAP Soil Classification Training
- Ohio Department of Transportation (ODOT) Soil and Rock Classification Training
- 40 Hour OSHA HAZWOPER Certified
- Hess UBU Training
- Miner Safety and Health Administration (MSHA) Certified
- Safeland: Oil and Gas Safety Training
- National Groundwater Association (NGWA) Member

**CAREER HIGHLIGHTS/ACCOMPLISHMENTS**

- Worked on multiple sites under the Ohio Voluntary Action Program (VAP). Work included Phase I and II Environmental Site Assessments, risk assessment, demonstration of background levels, contaminant transport modeling, site specific remediation, and No Further Action Letter issuances.
- Provided oversight for the delineation, soil and groundwater sampling, QA/QC sampling, delivery, and assessment during an emergency crude oil release of 30,000+ gallons.
- Participated in the design, and managing databases for laboratory data received during field sampling events.
- Completed field investigation, data mitigation, GIS figure generation and technical writing of Phase II report, conclusions and recommendation letter for 18 acre property in Chillicothe, OH
- Performed geotechnical drilling and analysis for engineering projects involving the construction of shale/gas oil pads in eastern Ohio.
- Collected data for Clean Ohio project for an idle steel mill plant in Yorkville, Ohio. Included logging and sampling over 140 boreholes, installing, and sampling multiple wells, delineating identified areas and collecting soil-gas and air samples during a multi-month period.
- Provided assistance to asbestos abatement oversight on 1 project in Chillicothe, Ohio.

- Completed Area Wide Assessments to identify brownfields in a community that produced multiple Phase I and Phase II environmental site assessments.
- Participated in or completed multiple Phase II environmental site assessments following ASTM and/or VAP guidelines.
- Provided oversight of geotechnical installations of dams and barriers to isolate product during an emergency oil spill
- Performed on site monitoring well sampling at South Bend, Indiana site which required the collection of samples at 73 monitoring wells across the city.
- Managed laboratory data and QA/QC collection of all data from South Bend, Indiana city-wide project tracking a TCE plume.
- Participated in Phase I, Phase II, and data collection / organization activities for submission into the Clean Ohio Revitalization Fund program for multiple projects.
- Performed explosive gas monitoring at a city landfill.
- Proficient in the use of the following field equipment: Soil vapor pin installation, SUMMA canister soil gas and air sampling, peristaltic pump, bladder pump, inertia pump, flow though sonde active groundwater parameter monitoring, various groundwater parameter sampling equipment (i.e. turbidimeter, conductivity/temperature/pH meter), Photo Ionization Detector (PID), Multi-gas meter, bailer groundwater sampling, Laser Level for monitoring well and groundwater elevations.

**PROFESSIONAL EXPERIENCE**

*06/15 to present* *Environmental Scientist, PANDEY Environmental, LLC*

Duties include conducting ASTM E1527 and VAP Phase I and II Property assessments, environmental sampling, and supervising subcontractors utilized for site investigation and remediation activities.

Specific activities include soil boring, monitoring well, and gas extraction well installations, soil excavations, demolition oversight, skimming oil from groundwater, vapor barrier installations, active and passive gas extraction systems (hazardous gas, hydrogen sulfide and methane), gas monitoring sensor installations and maintenance, underground storage tank removals, in-site groundwater remedial injections, risk assessment and modeling, and soil gas sampling.

Other duties include Spill Prevention Control and Countermeasures (SPCC) plan implementation and monthly SPCC inspections, preparation of figures and maps using Auto CAD and GIS, and preparation of plans and reports.

*08/13 to 06/15* *Hydrogeologist I, Hull & Associates*

Performed filed work activities on a diversity of projects including: BUSTR, VAP, ASTM, Clean Ohio, shale/oil gas pads and ODOT. Taking detailed notes in the field and bringing information into the office to complete technical report writing and summary reports for environmental assessments and conclusions. Performed routine oversight and monitoring regularly at multiple job sites. Performed field work that involved: Groundwater sampling, soil sampling, air sampling, soil-gas sampling, sediment sampling, waste characterization, wetland delineation, sub-base sampling, rock coring, soil logging, slug

testing, Passive Diffusive Bag sampling, product level monitoring and explosive gas monitoring. Writing Phase I and II reports, interviewing clients and performing site reconnaissance.

*05/12 to 07/13 Geoscience & Astronomy Teacher, Evanston Township High*

Performed all duties of a full time teacher. Responsible for developing and teaching senior level science courses specifically in the areas of geology and astronomy. Managed 5 preps of classes and students. Managed student behavior, grading, tracking and database management of student grades. Participated in school team events and extracurricular activities / hosting clubs for students after school.

**ENGINEERING & MODELING SOFTWARE**

Knowledge of Microsoft Office (including Word, Outlook, Excel, PowerPoint) and Microsoft Access database management. Basic usage of GIS (ESRI ArcMap), Trimble GPS Geoexplorer Units, GeoGraphics boring log generating software and topographic map generation software. Experience with Seasonal Soil compartment model (SESOIL) for water, sediment, and pollutant transport.

# APPENDIX D

ProUCL Statistics Data Table for Arsenic Background

## UCL Statistics for Uncensored Full Data Sets

| | |
|---|---|
| User Selected Options | |
| Date/Time of Computation | 12/15/2015 10:43:43 AM |
| From File | WorkSheet.xls |
| Full Precision | OFF |
| Confidence Coefficient | 95% |
| Number of Bootstrap Operations | 2000 |

**Arsenic**

### General Statistics

| | | | |
|---|---|---|---|
| Total Number of Observations | 15 | Number of Distinct Observations | 15 |
| | | Number of Missing Observations | 0 |
| Minimum | 8.4 | Mean | 17.81 |
| Maximum | 26.6 | Median | 16.4 |
| SD | 5.248 | Std. Error of Mean | 1.355 |
| Coefficient of Variation | 0.295 | Skewness | 0.262 |

### Normal GOF Test

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.955 | Shapiro Wilk GOF Test |
| 5% Shapiro Wilk Critical Value | 0.881 | Data appear Normal at 5% Significance Level |
| Lilliefors Test Statistic | 0.139 | Lilliefors GOF Test |
| 5% Lilliefors Critical Value | 0.229 | Data appear Normal at 5% Significance Level |

**Data appear Normal at 5% Significance Level**

### Assuming Normal Distribution

| | | | |
|---|---|---|---|
| 95% Normal UCL | | 95% UCLs (Adjusted for Skewness) | |
| 95% Student's-t UCL | 20.2 | 95% Adjusted-CLT UCL (Chen-1995) | 20.14 |
| | | 95% Modified-t UCL (Johnson-1978) | 20.22 |

### Gamma GOF Test

| | | |
|---|---|---|
| A-D Test Statistic | 0.249 | Anderson-Darling Gamma GOF Test |
| 5% A-D Critical Value | 0.737 | Detected data appear Gamma Distributed at 5% Significance Level |
| K-S Test Statistic | 0.115 | Kolmogrov-Smirnoff Gamma GOF Test |
| 5% K-S Critical Value | 0.221 | Detected data appear Gamma Distributed at 5% Significance Level |

**Detected data appear Gamma Distributed at 5% Significance Level**

### Gamma Statistics

| | | | |
|---|---|---|---|
| k hat (MLE) | 11.8 | k star (bias corrected MLE) | 9.482 |
| Theta hat (MLE) | 1.51 | Theta star (bias corrected MLE) | 1.879 |
| nu hat (MLE) | 353.9 | nu star (bias corrected) | 284.5 |
| MLE Mean (bias corrected) | 17.81 | MLE Sd (bias corrected) | 5.785 |
| | | Approximate Chi Square Value (0.05) | 246.4 |
| Adjusted Level of Significance | 0.0324 | Adjusted Chi Square Value | 242 |

### Assuming Gamma Distribution

| | | | |
|---|---|---|---|
| 95% Approximate Gamma UCL (use when n>=50)) | 20.57 | 95% Adjusted Gamma UCL (use when n<50) | 20.94 |

### Lognormal GOF Test

| | | |
|---|---|---|
| Shapiro Wilk Test Statistic | 0.955 | Shapiro Wilk Lognormal GOF Test |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 53 | | | 5% Shapiro Wilk Critical Value | | 0.881 | | Data appear Lognormal at 5% Significance Level | | | | | |
| 54 | | | Lilliefors Test Statistic | | 0.116 | | Lilliefors Lognormal GOF Test | | | | | |
| 55 | | | 5% Lilliefors Critical Value | | 0.229 | | Data appear Lognormal at 5% Significance Level | | | | | |
| 56 | | | Data appear Lognormal at 5% Significance Level | | | | | | | | | |
| 57 | | | | | | | | | | | | |
| 58 | | | Lognormal Statistics | | | | | | | | | |
| 59 | | | Minimum of Logged Data | | 2.128 | | | | Mean of logged Data | | 2.837 | |
| 60 | | | Maximum of Logged Data | | 3.281 | | | | SD of logged Data | | 0.311 | |
| 61 | | | | | | | | | | | | |
| 62 | | | Assuming Lognormal Distribution | | | | | | | | | |
| 63 | | | 95% H-UCL | | 20.95 | | | | 90% Chebyshev (MVUE) UCL | | 22.19 | |
| 64 | | | 95% Chebyshev (MVUE) UCL | | 24.16 | | | | 97.5% Chebyshev (MVUE) UCL | | 26.9 | |
| 65 | | | 99% Chebyshev (MVUE) UCL | | 32.27 | | | | | | | |
| 66 | | | | | | | | | | | | |
| 67 | | | Nonparametric Distribution Free UCL Statistics | | | | | | | | | |
| 68 | | | Data appear to follow a Discernible Distribution at 5% Significance Level | | | | | | | | | |
| 69 | | | | | | | | | | | | |
| 70 | | | Nonparametric Distribution Free UCLs | | | | | | | | | |
| 71 | | | 95% CLT UCL | | 20.04 | | | | 95% Jackknife UCL | | 20.2 | |
| 72 | | | 95% Standard Bootstrap UCL | | 20 | | | | 95% Bootstrap-t UCL | | 20.37 | |
| 73 | | | 95% Hall's Bootstrap UCL | | 20.2 | | | | 95% Percentile Bootstrap UCL | | 19.91 | |
| 74 | | | 95% BCA Bootstrap UCL | | 20.19 | | | | | | | |
| 75 | | | 90% Chebyshev(Mean, Sd) UCL | | 21.88 | | | | 95% Chebyshev(Mean, Sd) UCL | | 23.72 | |
| 76 | | | 97.5% Chebyshev(Mean, Sd) UCL | | 26.28 | | | | 99% Chebyshev(Mean, Sd) UCL | | 31.3 | |
| 77 | | | | | | | | | | | | |
| 78 | | | Suggested UCL to Use | | | | | | | | | |
| 79 | | | 95% Student's-t UCL | | 20.2 | | | | | | | |
| 80 | | | | | | | | | | | | |
| 81 | Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. | | | | | | | | | | | |
| 82 | These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) | | | | | | | | | | | |
| 83 | and Singh and Singh (2003). However, simulations results will not cover all Real World data sets. | | | | | | | | | | | |
| 84 | For additional insight the user may want to consult a statistician. | | | | | | | | | | | |
| 85 | | | | | | | | | | | | |

# APPENDIX E

Regulatory Standards and Data Validation

# Table E-1: Direct Contact Soil Standards Used in Risk Evaluation

## Former Mud Run Gun Club: 333 Pleasant Meadow Blvd.; Cuyahoga Falls, Ohio

PANDEY
ENVIRONMENTAL, LLC

*Commercial/Industrial*

| CAS | Chemical Name | Standard | Non-Cancer Standard | Cancer Standard | Units | Date of Standard | Source |
|---|---|---|---|---|---|---|---|
| **Metals & Inorganic Analytes** | | | | | | | |
| 7440-36-0 | Antimony (metallic) | 1600 | 1600 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 7440-38-2 | Arsenic, Inorganic | 77 | 1200 | 77 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 7440-39-3 | Barium and Compounds | 680000 | 680000 | n/a | mg/kg | 6/15/2015 | CIDARS downloaded from OEPA website 08/13/2015 |
| 7440-43-9 | Cadmium | 2600 | 2600 | 130000 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 7440-47-3 | Chromium, Total | 210 | 12000 | 210 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14: Cr(VI) |
| 7439-92-1 | Lead and Compounds | 800 | n/a | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 7439-97-6 | Mercury and Compounds | 3.1 | 85 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 7440-02-0 | Nickel Soluble Salts | 74000 | 74000 | 900000 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 7782-49-2 | Selenium | 20000 | 20000 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 7440-22-4 | Silver | 20000 | 20000 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| **Semi-Volatile Organic Compounds (SVOCs)** | | | | | | | |
| 83-32-9 | Acenaphthene | 90000 | 90000 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 208-96-8 | Acenaphthylene | 90000 | 90000 | n/a | mg/kg | 6/13/2014 | CIDARS downloaded 8/27/14 |
| 120-12-7 | Anthracene | 450000 | 450000 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 56-55-3 | Benz[a]anthracene | 58 | n/a | 58 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 191-24-2 | Benzo(g,h,i)perylene | 45000 | 45000 | n/a | mg/kg | 6/13/2014 | CIDARS downloaded 8/27/14 |
| 50-32-8 | Benzo[a]pyrene | 5.8 | n/a | 5.8 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 205-99-2 | Benzo[b]fluoranthene | 58 | n/a | 58 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 207-08-9 | Benzo[k]fluoranthene | 580 | n/a | 580 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |

# Table E-1: Direct Contact Soil Standards Used in Risk Evaluation

PANDEY
ENVIRONMENTAL, LLC

## Former Mud Run Gun Club: 333 Pleasant Meadow Blvd.; Cuyahoga Falls, Ohio

*Commercial/Industrial*

| CAS | Chemical Name | Standard | Non-Cancer Standard | Cancer Standard | Units | Date of Standard | Source |
|---|---|---|---|---|---|---|---|
| 218-01-9 | Chrysene | 5800 | n/a | 5800 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 53-70-3 | Dibenz[a,h]anthracene | 5.8 | n/a | 5.8 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 206-44-0 | Fluoranthene | 60000 | 60000 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 86-73-7 | Fluorene | 60000 | 60000 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 193-39-5 | Indeno[1,2,3-cd]pyrene | 58 | n/a | 58 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 91-57-6 | Methylnaphthalene, 2- | 6000 | 6000 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 91-20-3 | Naphthalene | 450 | 1600 | 450 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 85-01-8 | Phenanthrene | 450000 | 450000 | n/a | mg/kg | 6/13/2014 | CIDARS downloaded 8/27/14 |
| 129-00-0 | Pyrene | 45000 | 45000 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |

# Table E-1: Direct Contact Soil Standards Used in Risk Evaluation

## Former Mud Run Gun Club: 333 Pleasant Meadow Blvd.; Cuyahoga Falls, Ohio

PANDEY ENVIRONMENTAL, LLC

*Construction/Excavation*

| CAS | Chemical Name | Standard | Non-Cancer Standard | Cancer Standard | Units | Date of Standard | Source |
|---|---|---|---|---|---|---|---|
| **Metals & Inorganic Analytes** | | | | | | | |
| 7440-36-0 | Antimony (metallic) | 850 | 850 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 7440-38-2 | Arsenic, Inorganic | 690 | 690 | 1300 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 7440-39-3 | Barium and Compounds | 320000 | 320000 | n/a | mg/kg | 6/15/2015 | CIDARS downloaded from OEPA website 08/13/2015 |
| 7440-43-9 | Cadmium | 1000 | 1000 | 95000 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 7440-47-3 | Chromium, Total | 1200 | 19000 | 1200 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14: Cr(VI) |
| 7439-92-1 | Lead and Compounds | 400 | n/a | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 7439-97-6 | Mercury and Compounds | 3.1 | 31 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 7440-02-0 | Nickel Soluble Salts | 23000 | 23000 | 660000 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 7782-49-2 | Selenium | 11000 | 11000 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 7440-22-4 | Silver | 11000 | 11000 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| **Semi-Volatile Organic Compounds (SVOCs)** | | | | | | | |
| 83-32-9 | Acenaphthene | 780000 | 780000 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 208-96-8 | Acenaphthylene | 780000 | 780000 | n/a | mg/kg | 6/13/2014 | CIDARS downloaded 8/27/14 |
| 120-12-7 | Anthracene | 1000000 | 1000000 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 56-55-3 | Benz[a]anthracene | 1200 | n/a | 1200 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 191-24-2 | Benzo(g,h,i)perylene | 390000 | 390000 | n/a | mg/kg | 6/13/2014 | CIDARS downloaded 8/27/14 |
| 50-32-8 | Benzo[a]pyrene | 120 | n/a | 120 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 205-99-2 | Benzo[b]fluoranthene | 1200 | n/a | 1200 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 207-08-9 | Benzo[k]fluoranthene | 12000 | n/a | 12000 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |

# Table E-1: Direct Contact Soil Standards Used in Risk Evaluation

## Former Mud Run Gun Club: 333 Pleasant Meadow Blvd.; Cuyahoga Falls, Ohio

PANDEY
ENVIRONMENTAL, LLC

*Construction/Excavation*

| CAS | Chemical Name | Standard | Non-Cancer Standard | Cancer Standard | Units | Date of Standard | Source |
|---|---|---|---|---|---|---|---|
| 218-01-9 | Chrysene | 120000 | n/a | 120000 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 53-70-3 | Dibenz[a,h]anthracene | 120 | n/a | 120 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 206-44-0 | Fluoranthene | 160000 | 160000 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 86-73-7 | Fluorene | 520000 | 520000 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 193-39-5 | Indeno[1,2,3-cd]pyrene | 1200 | n/a | 1200 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 91-57-6 | Methylnaphthalene, 2- | 5200 | 5200 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 91-20-3 | Naphthalene | 560 | 560 | 3800 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 85-01-8 | Phenanthrene | 1000000 | 1000000 | n/a | mg/kg | 6/13/2014 | CIDARS downloaded 8/27/14 |
| 129-00-0 | Pyrene | 390000 | 390000 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |

# Table E-1: Direct Contact Soil Standards Used in Risk Evaluation

## Former Mud Run Gun Club: 333 Pleasant Meadow Blvd.; Cuyahoga Falls, Ohio

PANDEY ENVIRONMENTAL, LLC

*Unrestricted/Residential*

| CAS | Chemical Name | Standard | Non-Cancer Standard | Cancer Standard | Units | Date of Standard | Source |
|---|---|---|---|---|---|---|---|
| **Metals & Inorganic Analytes** | | | | | | | |
| 7440-36-0 | Antimony (metallic) | 63 | 63 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 7440-38-2 | Arsenic, Inorganic | 12 | 68 | 12 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 7440-39-3 | Barium and Compounds | 30000 | 30000 | n/a | mg/kg | 6/15/2015 | CIDARS downloaded from OEPA website 08/13/2015 |
| 7440-43-9 | Cadmium | 140 | 140 | 26000 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 7440-47-3 | Chromium, Total | 24 | 470 | 24 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14: Cr(VI) |
| 7439-92-1 | Lead and Compounds | 400 | n/a | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 7439-97-6 | Mercury and Compounds | 3.1 | 9.7 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 7440-02-0 | Nickel Soluble Salts | 3100 | 3100 | 180000 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 7782-49-2 | Selenium | 780 | 780 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 7440-22-4 | Silver | 780 | 780 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| **Semi-Volatile Organic Compounds (SVOCs)** | | | | | | | |
| 83-32-9 | Acenaphthene | 6900 | 6900 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 208-96-8 | Acenaphthylene | 6900 | 6900 | n/a | mg/kg | 6/13/2014 | CIDARS downloaded 8/27/14 |
| 120-12-7 | Anthracene | 34000 | 34000 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 56-55-3 | Benz[a]anthracene | 12 | n/a | 12 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 191-24-2 | Benzo(g,h,i)perylene | 3400 | 3400 | n/a | mg/kg | 6/13/2014 | CIDARS downloaded 8/27/14 |
| 50-32-8 | Benzo[a]pyrene | 1.2 | n/a | 1.2 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 205-99-2 | Benzo[b]fluoranthene | 12 | n/a | 12 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 207-08-9 | Benzo[k]fluoranthene | 120 | n/a | 120 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |

# Table E-1: Direct Contact Soil Standards Used in Risk Evaluation

## Former Mud Run Gun Club: 333 Pleasant Meadow Blvd.; Cuyahoga Falls, Ohio

PANDEY
ENVIRONMENTAL, LLC

*Unrestricted/Residential*

| CAS | Chemical Name | Standard | Non-Cancer Standard | Cancer Standard | Units | Date of Standard | Source |
|---|---|---|---|---|---|---|---|
| 218-01-9 | Chrysene | 1200 | n/a | 1200 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 53-70-3 | Dibenz[a,h]anthracene | 1.2 | n/a | 1.2 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 206-44-0 | Fluoranthene | 4600 | 4600 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 86-73-7 | Fluorene | 4600 | 4600 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 193-39-5 | Indeno[1,2,3-cd]pyrene | 12 | n/a | 12 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 91-57-6 | Methylnaphthalene, 2- | 460 | 460 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 91-20-3 | Naphthalene | 90 | 330 | 90 | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |
| 85-01-8 | Phenanthrene | 34000 | 34000 | n/a | mg/kg | 6/13/2014 | CIDARS downloaded 8/27/14 |
| 129-00-0 | Pyrene | 3400 | 3400 | n/a | mg/kg | 8/1/2014 | VAP Rule 8 Appendix Downloaded 8/27/14 |

# APPENIDX E-2:Sediment Standards Used in Risk Evaluation

## Former Mud Run Gun Club: 333 Pleasant Meadow Blvd.; Cuyahoga Falls, Ohio

PANDEY
ENVIRONMENTAL, LLC

| CAS | Chemical Name | Standard (ppm) | Source |
|---|---|---|---|
| **Metals & Inorganic Analytes** | | | |
| 7440-41-7 | Beryllium and compounds | 0.8 | OEPA Ecological Risk Assmt Guidance rev Apr 2008, Page 3-32, State-Wide |
| 7440-48-4 | Cobalt | 12 | OEPA Ecological Risk Assmt Guidance rev Apr 2008, Page 3-32, State-Wide |
| 57-12-5 | Cyanide (CN-) | 0.0001 | http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf |
| 7440-28-0 | Thallium (Soluble Salts) | 4.7 | OEPA Ecological Risk Assmt Guidance rev Apr 2008, Page 3-32, State-Wide |
| 7440-62-2 | Vanadium | 40 | OEPA Ecological Risk Assmt Guidance rev Apr 2008, Page 3-32, State-Wide |
| **Polychlorinated Biphenyls (PCBs)** | | | |
| 11096-82-5 | Aroclor 1260 | 0.0598 | McDonald, Ingersoll, Berger. 1999/2000, TEC |
| 1336-36-3 | Polychlorinated Biphenyls, Total | 0.0598 | McDonald, Ingersoll, Berger. 1999/2000, TEC |
| **Volatile Organic Compounds (VOCs)** | | | |
| 67-64-1 | Acetone | 0.0099 | http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf |
| 108-90-7 | Chlorobenzene | 0.291 | http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf |
| 78-93-3 | Methyl Ethyl Ketone (2-Butanone) | 0.0424 | http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf |
| 127-18-4 | Tetrachloroethylene | 0.99 | http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf |
| 108-88-3 | Toluene | 1.22 | http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf |
| 71-55-6 | Trichloroethane, 1,1,1- | 0.213 | http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf |
| 79-01-6 | Trichloroethylene | 0.112 | http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf |
| **Semi-Volatile Organic Compounds (SVOCs)** | | | |
| 83-32-9 | Acenaphthene | 0.00671 | http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf |
| 208-96-8 | Acenaphthylene | 0.00587 | http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf |
| 120-12-7 | Anthracene | 0.0572 | McDonald, Ingersoll, Berger. 1999/2000, TEC |

# APPENIDX E-2:Sediment Standards Used in Risk Evaluation

## Former Mud Run Gun Club: 333 Pleasant Meadow Blvd.; Cuyahoga Falls, Ohio

PANDEY
ENVIRONMENTAL, LLC

| CAS | Chemical Name | Standard (ppm) | Source |
|---|---|---|---|
| 56-55-3 | Benz[a]anthracene | 0.108 | McDonald, Ingersoll, Berger. 1999/2000, TEC |
| 191-24-2 | Benzo(g,h,i)perylene | 0.17 | http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf |
| 50-32-8 | Benzo[a]pyrene | 0.15 | McDonald, Ingersoll, Berger. 1999/2000, TEC |
| 205-99-2 | Benzo[b]fluoranthene | 10.4 | http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf |
| 207-08-9 | Benzo[k]fluoranthene | 0.24 | http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf |
| 117-81-7 | Bis(2-ethylhexyl)phthalate | 0.182 | http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf |
| 85-68-7 | Butyl Benzyl Phthlate | 1.97 | http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf |
| 57-74-9 | Chlordane | 0.00324 | McDonald, Ingersoll, Berger. 1999/2000, TEC |
| 218-01-9 | Chrysene | 0.166 | McDonald, Ingersoll, Berger. 1999/2000, TEC |
| 53-70-3 | Dibenz[a,h]anthracene | 0.033 | McDonald, Ingersoll, Berger. 1999/2000, TEC |
| 132-64-9 | Dibenzofuran | 0.449 | http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf |
| 84-74-2 | Dibutyl Phthalate | 1.114 | http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf |
| 206-44-0 | Fluoranthene | 0.423 | McDonald, Ingersoll, Berger. 1999/2000, TEC |
| 86-73-7 | Fluorene | 0.0774 | McDonald, Ingersoll, Berger. 1999/2000, TEC |
| 319-85-7 | Hexachlorocyclohexane, Beta- | 0.005 | http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf |
| 193-39-5 | Indeno[1,2,3-cd]pyrene | 0.2 | http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf |
| 91-57-6 | Methylnaphthalene, 2- | 0.0202 | http://epa.gov/region5/waste/cars/pdfs/ecological-screening-levels-200308.pdf |
| 91-20-3 | Naphthalene | 0.176 | McDonald, Ingersoll, Berger. 1999/2000, TEC |
| 85-01-8 | Phenanthrene | 0.204 | McDonald, Ingersoll, Berger. 1999/2000, TEC |
| 129-00-0 | Pyrene | 0.195 | McDonald, Ingersoll, Berger. 1999/2000, TEC |

# APPENDIX F

Analyses with MDL Above Standards

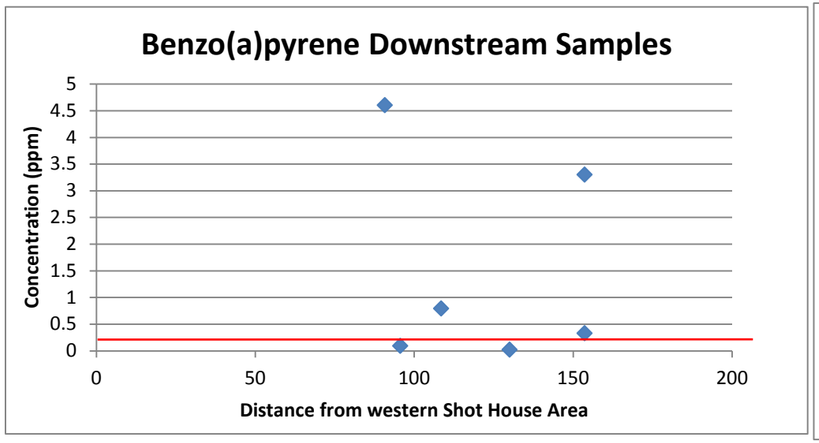
NO SOIL ANALYSES HAD MDLS ABOVE THEIR RESPECTIVE STANDARDS

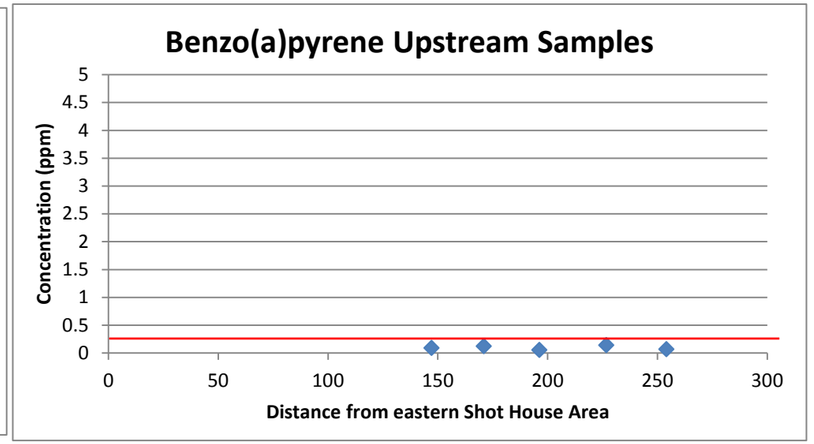
# APPENDIX G

Sediment Graphical Analysis Charts

| Parameter | Distance | Results_PPM | Sample ID |
|---|---|---|---|
| Benzo(a)pyrene | 254.1 | 0.069 | SD-1 |
| Benzo(a)pyrene | 226.7 | 0.14 | SD-2 |
| Benzo(a)pyrene | 196.3 | 0.053 | SD-3 |
| Benzo(a)pyrene | 171 | 0.12 | SD-4 |
| Benzo(a)pyrene | 147.2 | 0.088 | SD-5 |
| Benzo(a)pyrene | 90.8 | 4.6 | SD-6 |
| Benzo(a)pyrene | 95.6 | 0.09 | SD-7 |
| Benzo(a)pyrene | 108.5 | 0.79 | SD-8 |
| Benzo(a)pyrene | 130 | 0.019 | SD-9 |
| Benzo(a)pyrene | 153.6 | 0.33 | SD-10 |
| Benzo(a)pyrene | 153.6 | 3.3 | SD-10A |

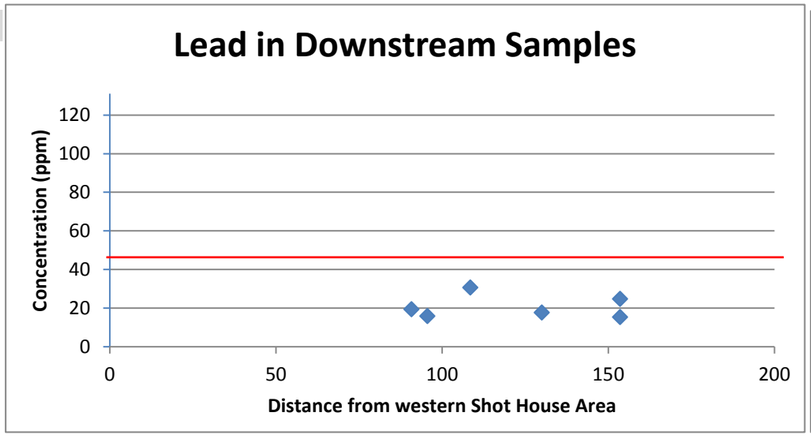
**MacDonald Consensus-Based TEC Value for Benzo(a)pyrene = 0.150 ppm (shown on graph)**

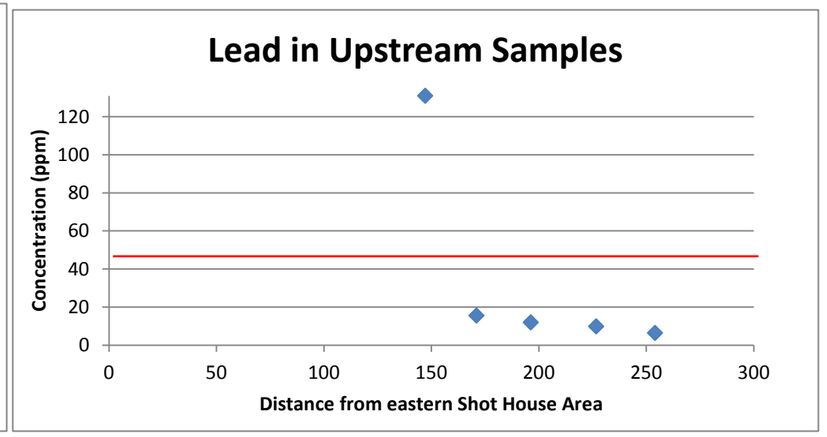


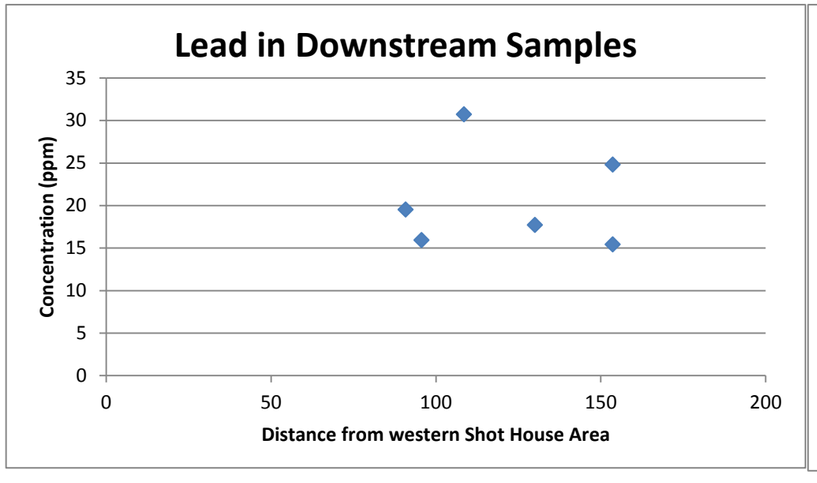



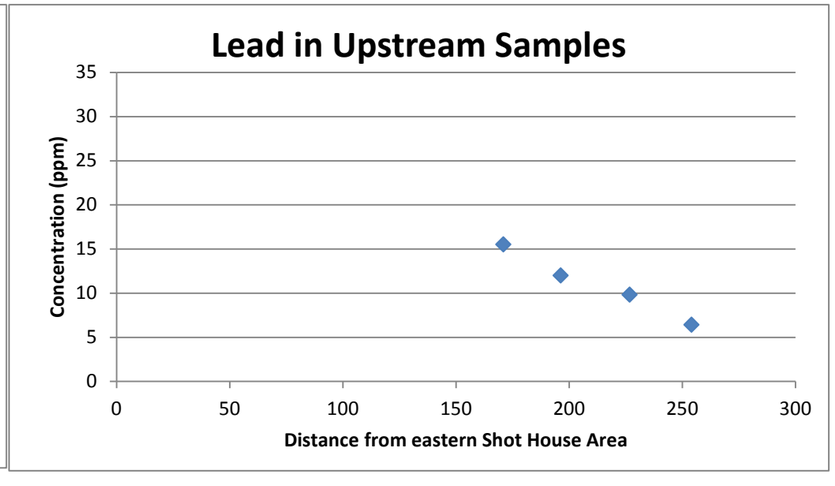

| Parameter | Distance | Results_PPM | Sample ID |
|---|---|---|---|
| Lead | 254.1 | 6.4 | SD-1 |
| Lead | 226.7 | 9.8 | SD-2 |
| Lead | 196.3 | 12 | SD-3 |
| Lead | 171 | 15.5 | SD-4 |
| Lead | 147.2 | 131 | SD-5 |
| Lead | 90.8 | 19.5 | SD-6 |
| Lead | 95.6 | 15.9 | SD-7 |
| Lead | 108.5 | 30.7 | SD-8 |
| Lead | 130 | 17.7 | SD-9 |
| Lead | 153.6 | 24.8 | SD-10 |
| Lead | 153.6 | 15.4 | SD-10A |

**Ohio SRV ELOP for Lead = 47 ppm (shown on graph)**



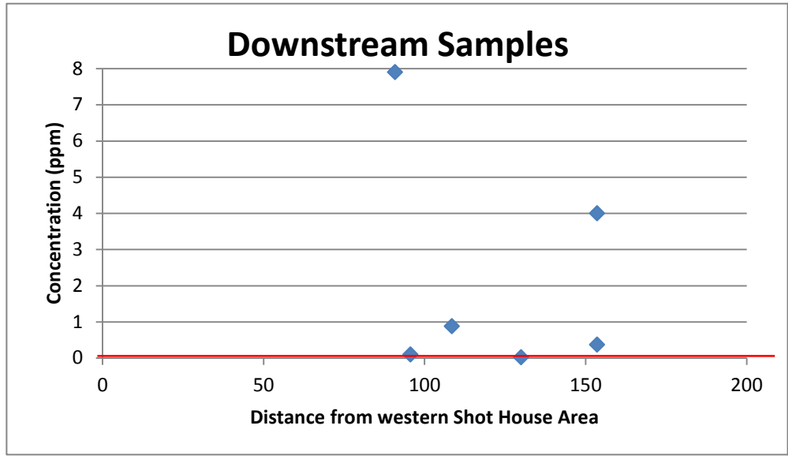



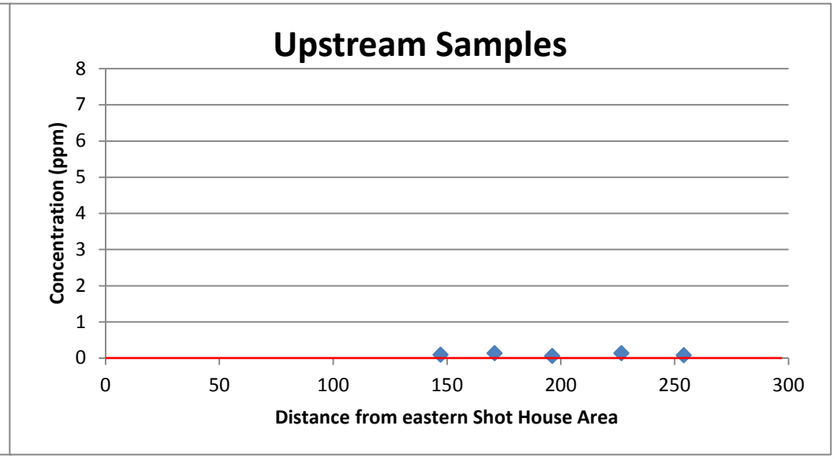



| Parameter | Distance | Results_PPM | Sample ID |
|---|---|---|---|
| Benzo(a)anthracene | 254.1 | 0.073 | SD-1 |
| Benzo(a)anthracene | 226.7 | 0.13 | SD-2 |
| Benzo(a)anthracene | 196.3 | 0.057 | SD-3 |
| Benzo(a)anthracene | 171 | 0.13 | SD-4 |
| Benzo(a)anthracene | 147.2 | 0.092 | SD-5 |
| Benzo(a)anthracene | 90.8 | 7.9 | SD-6 |
| Benzo(a)anthracene | 95.6 | 0.093 | SD-7 |
| Benzo(a)anthracene | 108.5 | 0.88 | SD-8 |
| Benzo(a)anthracene | 130 | 0.022 | SD-9 |
| Benzo(a)anthracene | 153.6 | 0.37 | SD-10 |
| Benzo(a)anthracene | 153.6 | 4 | SD-10A |

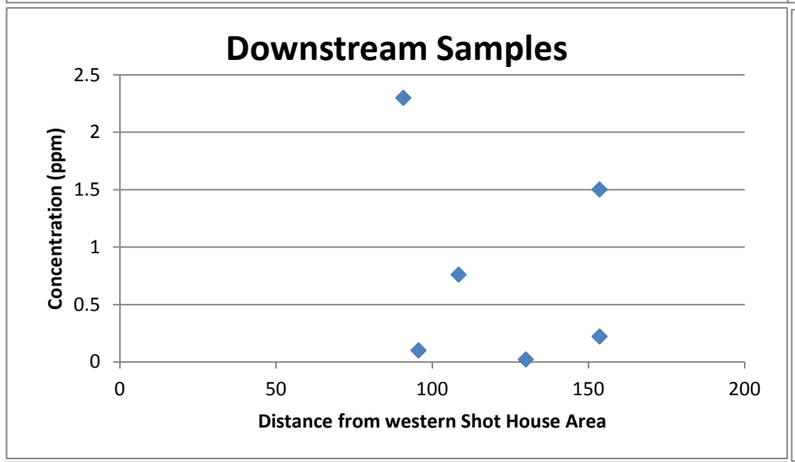
**MacDonald Consensus-Based TEC Value for Benzo(a)anthracene = 0.108 ppm (shown on graph)**

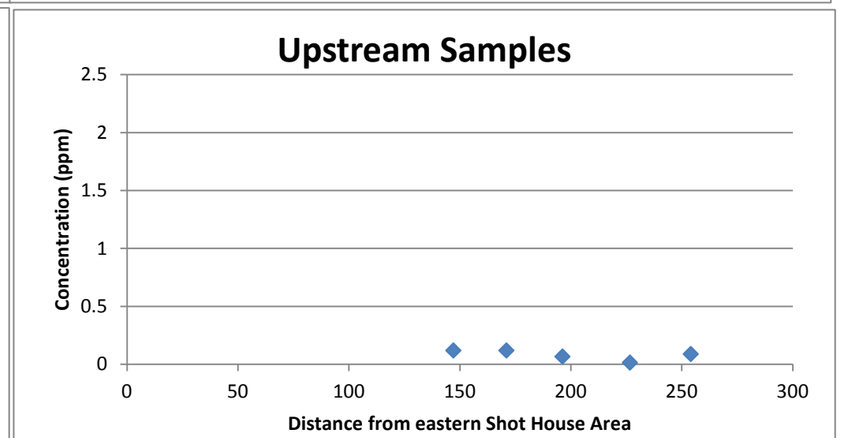



| Parameter | Distance | Results_PPM | Sample ID |
|---|---|---|---|
| Benzo(b)fluoranthene | 254.1 | 0.089 | SD-1 |
| Benzo(b)fluoranthene | 226.7 | 0.015 | SD-2 |
| Benzo(b)fluoranthene | 196.3 | 0.066 | SD-3 |
| Benzo(b)fluoranthene | 171 | 0.12 | SD-4 |
| Benzo(b)fluoranthene | 147.2 | 0.12 | SD-5 |
| Benzo(b)fluoranthene | 90.8 | 2.3 | SD-6 |
| Benzo(b)fluoranthene | 95.6 | 0.1 | SD-7 |
| Benzo(b)fluoranthene | 108.5 | 0.76 | SD-8 |
| Benzo(b)fluoranthene | 130 | 0.02 | SD-9 |
| Benzo(b)fluoranthene | 153.6 | 0.22 | SD-10 |
| Benzo(b)fluoranthene | 153.6 | 1.5 | SD-10A |

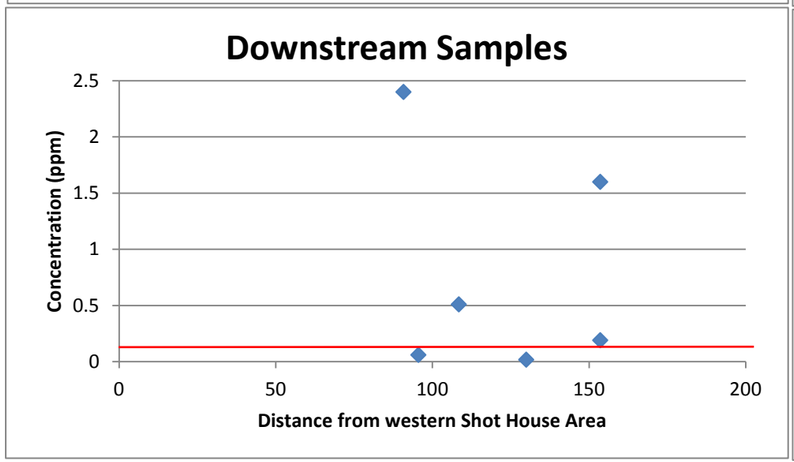
**EPA Region 5 Sed. Screening Value for Benzo(b)fluoranthene = 10.4 ppm**

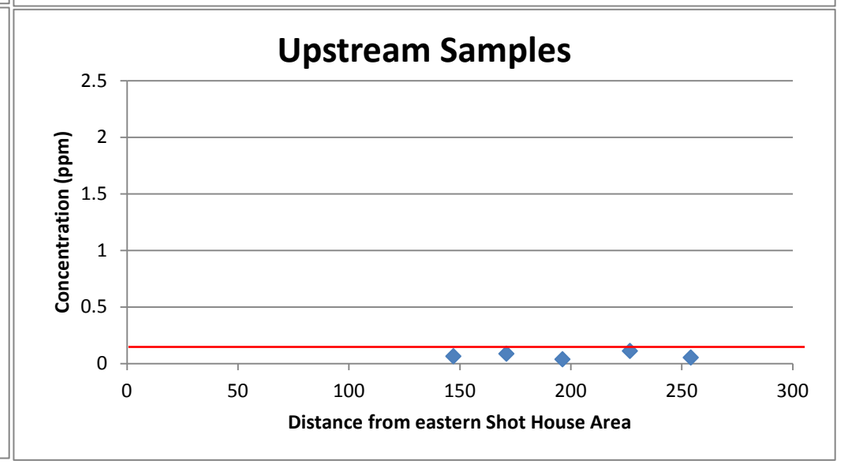



| Parameter | Distance | Results_PPM | Sample ID |
|---|---|---|---|
| Benzo(g,h,i)perylene | 254.1 | 0.053 | SD-1 |
| Benzo(g,h,i)perylene | 226.7 | 0.11 | SD-2 |
| Benzo(g,h,i)perylene | 196.3 | 0.037 | SD-3 |
| Benzo(g,h,i)perylene | 171 | 0.085 | SD-4 |
| Benzo(g,h,i)perylene | 147.2 | 0.063 | SD-5 |
| Benzo(g,h,i)perylene | 90.8 | 2.4 | SD-6 |
| Benzo(g,h,i)perylene | 95.6 | 0.06 | SD-7 |
| Benzo(g,h,i)perylene | 108.5 | 0.51 | SD-8 |
| Benzo(g,h,i)perylene | 130 | 0.016 | SD-9 |
| Benzo(g,h,i)perylene | 153.6 | 0.19 | SD-10 |
| Benzo(g,h,i)perylene | 153.6 | 1.6 | SD-10A |

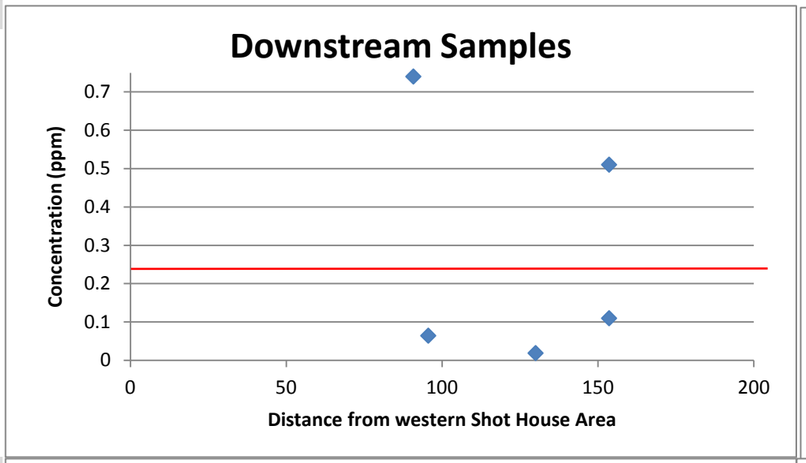
**EPA Region 5 Sed. Screening Value for Benzo(g,h,i)perylene = 0.17 ppm (shown on graph)**

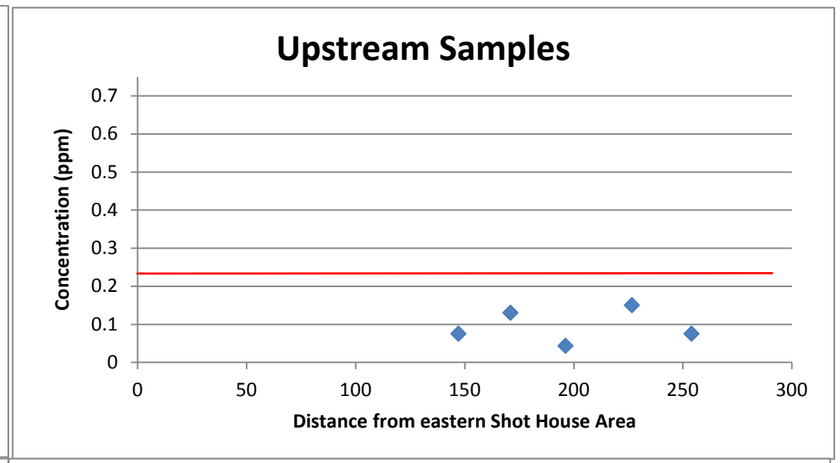


| Parameter | Distance | Results_PPM | Sample ID |
|---|---|---|---|
| Benzo(k)fluoranthene | 254.1 | 0.075 | SD-1 |
| Benzo(k)fluoranthene | 226.7 | 0.15 | SD-2 |
| Benzo(k)fluoranthene | 196.3 | 0.043 | SD-3 |
| Benzo(k)fluoranthene | 171 | 0.13 | SD-4 |
| Benzo(k)fluoranthene | 147.2 | 0.075 | SD-5 |
| Benzo(k)fluoranthene | 90.8 | 0.74 | SD-6 |
| Benzo(k)fluoranthene | 95.6 | 0.064 | SD-7 |
| Benzo(k)fluoranthene | 108.5 | 0.78 | SD-8 |
| Benzo(k)fluoranthene | 130 | 0.019 | SD-9 |
| Benzo(k)fluoranthene | 153.6 | 0.11 | SD-10 |
| Benzo(k)fluoranthene | 153.6 | 0.51 | SD-10A |

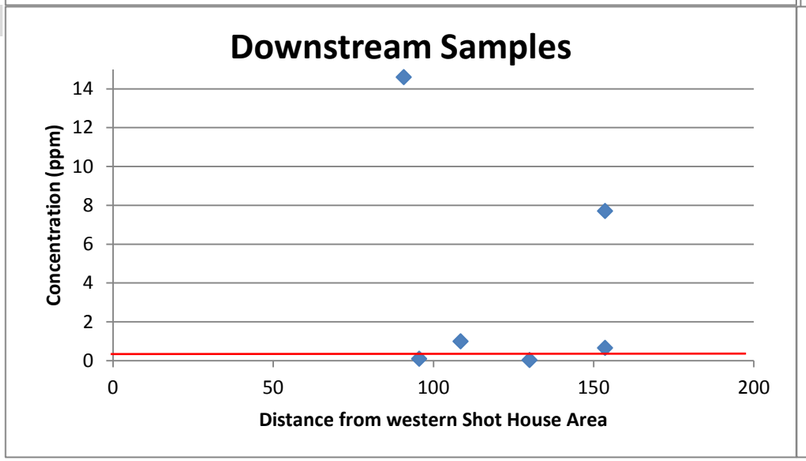
**EPA Region 5 Sed. Screening Value for Benzo(k)fluoranthene = 0.24 ppm (shown on graph)**

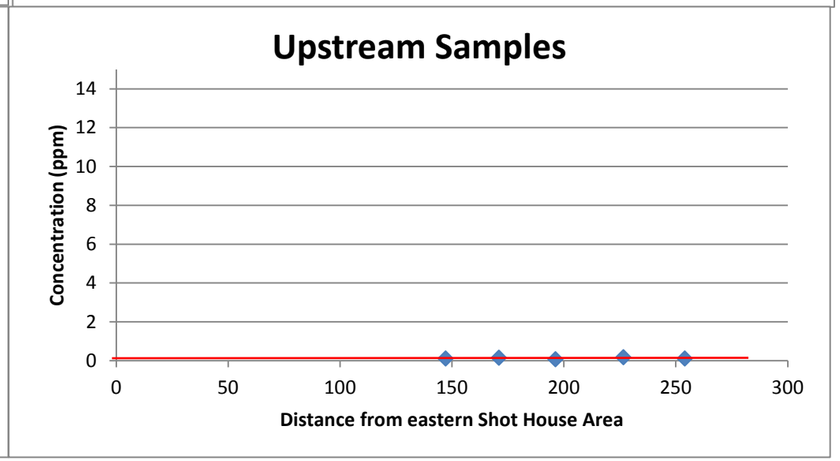



| Parameter | Distance | Results_PPM | Sample ID |
|---|---|---|---|
| Chysene | 254.1 | 0.11 | SD-1 |
| Chysene | 226.7 | 0.17 | SD-2 |
| Chysene | 196.3 | 0.064 | SD-3 |
| Chysene | 171 | 0.15 | SD-4 |
| Chysene | 147.2 | 0.11 | SD-5 |
| Chysene | 90.8 | 14.6 | SD-6 |
| Chysene | 95.6 | 0.098 | SD-7 |
| Chysene | 108.5 | 1 | SD-8 |
| Chysene | 130 | 0.027 | SD-9 |
| Chysene | 153.6 | 0.65 | SD-10 |
| Chysene | 153.6 | 7.7 | SD-10A |

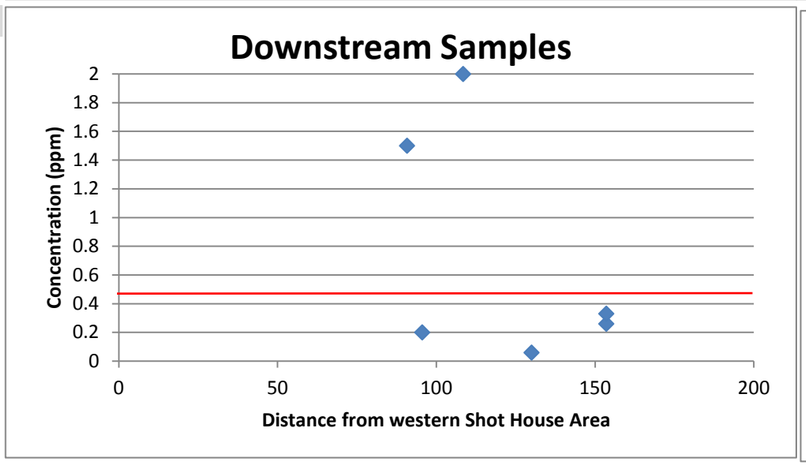
**MacDonald Consensus-Based TEC Value for Chysene = 0.166 ppm (shown on graph)**

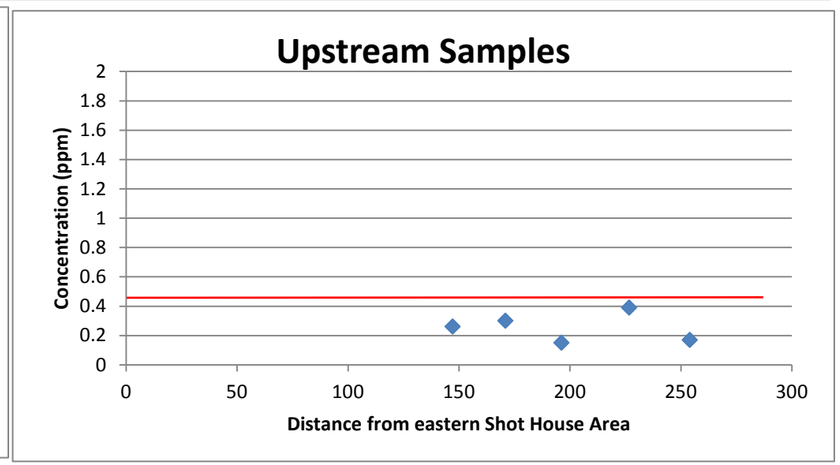



| Parameter | Distance | Results_PPM | Sample ID |
|---|---|---|---|
| Fluoranthene | 254.1 | 0.17 | SD-1 |
| Fluoranthene | 226.7 | 0.39 | SD-2 |
| Fluoranthene | 196.3 | 0.15 | SD-3 |
| Fluoranthene | 171 | 0.3 | SD-4 |
| Fluoranthene | 147.2 | 0.26 | SD-5 |
| Fluoranthene | 90.8 | 1.5 | SD-6 |
| Fluoranthene | 95.6 | 0.2 | SD-7 |
| Fluoranthene | 108.5 | 2 | SD-8 |
| Fluoranthene | 130 | 0.059 | SD-9 |
| Fluoranthene | 153.6 | 0.26 | SD-10 |
| Fluoranthene | 153.6 | 0.33 | SD-10A |

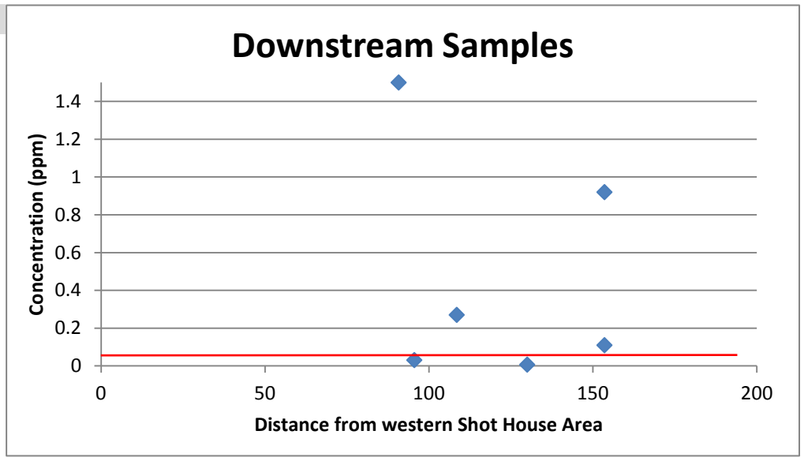
**MacDonald Consensus-Based TEC Value for Fluoranthene = 0.423 ppm (shown on graph)**

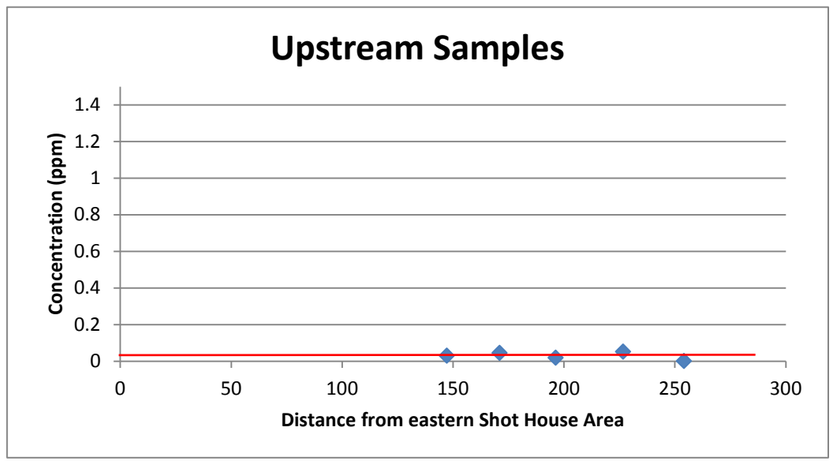


| Parameter | Distance | Results_PPM | Sample ID |
|---|---|---|---|
| Dibenz(a,h)anthracene | 254.1 | 0 | SD-1 |
| Dibenz(a,h)anthracene | 226.7 | 0.051 | SD-2 |
| Dibenz(a,h)anthracene | 196.3 | 0.018 | SD-3 |
| Dibenz(a,h)anthracene | 171 | 0.045 | SD-4 |
| Dibenz(a,h)anthracene | 147.2 | 0.029 | SD-5 |
| Dibenz(a,h)anthracene | 90.8 | 1.5 | SD-6 |
| Dibenz(a,h)anthracene | 95.6 | 0.03 | SD-7 |
| Dibenz(a,h)anthracene | 108.5 | 0.27 | SD-8 |
| Dibenz(a,h)anthracene | 130 | 0.0067 | SD-9 |
| Dibenz(a,h)anthracene | 153.6 | 0.11 | SD-10 |
| Dibenz(a,h)anthracene | 153.6 | 0.92 | SD-10A |

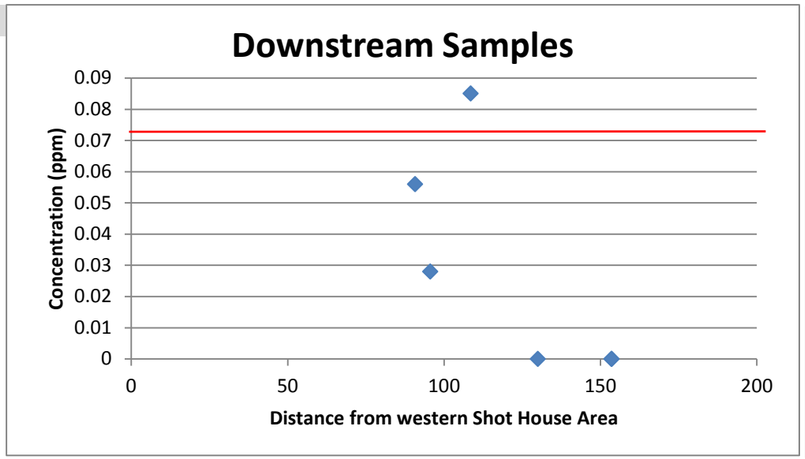
**EPA Region 5 Sed. Screening Value for Dibenz(a,h)anthracene = 0.033 ppm (shown on graph)**

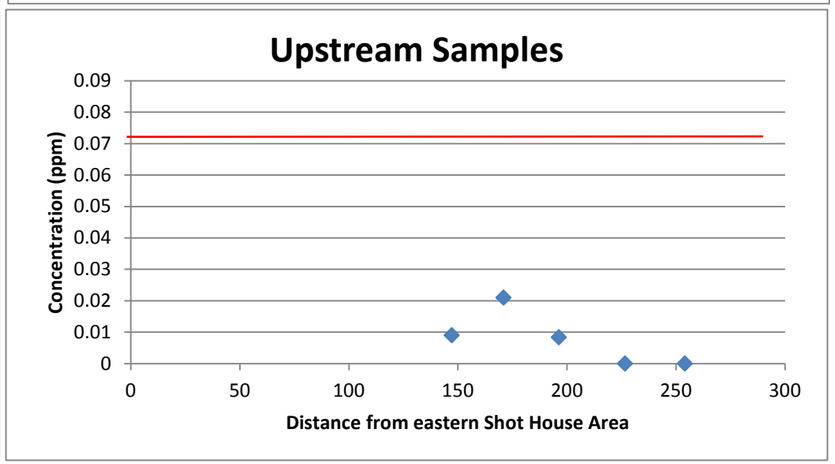



| Parameter | Distance | Results_PPM | Sample ID |
|---|---|---|---|
| Fluorene | 254.1 | 0 | SD-1 |
| Fluorene | 226.7 | 0 | SD-2 |
| Fluorene | 196.3 | 0.0084 | SD-3 |
| Fluorene | 171 | 0.021 | SD-4 |
| Fluorene | 147.2 | 0.009 | SD-5 |
| Fluorene | 90.8 | 0.056 | SD-6 |
| Fluorene | 95.6 | 0.028 | SD-7 |
| Fluorene | 108.5 | 0.085 | SD-8 |
| Fluorene | 130 | 0 | SD-9 |
| Fluorene | 153.6 | 0 | SD-10 |
| Fluorene | 153.6 | 0 | SD-10A |

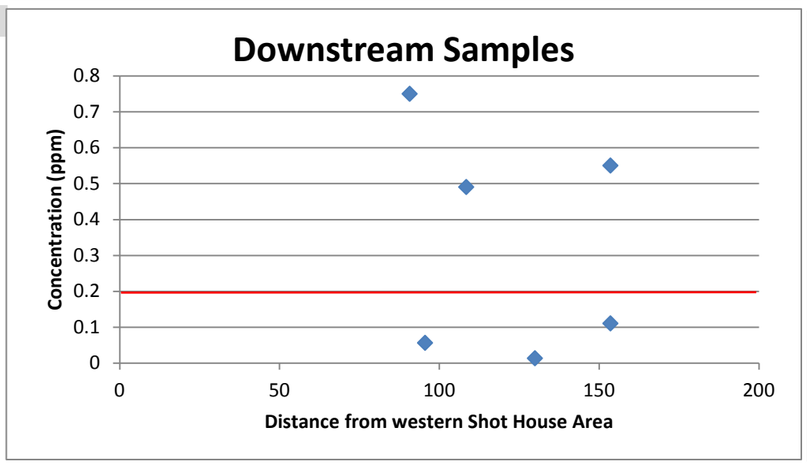
**EPA Region 5 Sed. Screening Value for Dibenz(a,h)anthracene = 0.0774 ppm (shown on graph)**

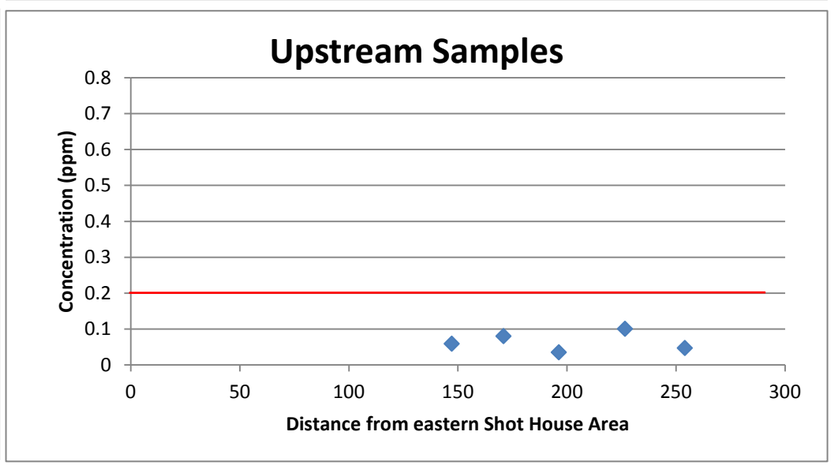



| Parameter | Distance | Results_PPM | Sample ID |
|---|---|---|---|
| Indeno(1,2,3-cd)pyrene | 254.1 | 0.047 | SD-1 |
| Indeno(1,2,3-cd)pyrene | 226.7 | 0.1 | SD-2 |
| Indeno(1,2,3-cd)pyrene | 196.3 | 0.035 | SD-3 |
| Indeno(1,2,3-cd)pyrene | 171 | 0.08 | SD-4 |
| Indeno(1,2,3-cd)pyrene | 147.2 | 0.059 | SD-5 |
| Indeno(1,2,3-cd)pyrene | 90.8 | 0.75 | SD-6 |
| Indeno(1,2,3-cd)pyrene | 95.6 | 0.056 | SD-7 |
| Indeno(1,2,3-cd)pyrene | 108.5 | 0.49 | SD-8 |
| Indeno(1,2,3-cd)pyrene | 130 | 0.013 | SD-9 |
| Indeno(1,2,3-cd)pyrene | 153.6 | 0.11 | SD-10 |
| Indeno(1,2,3-cd)pyrene | 153.6 | 0.55 | SD-10A |

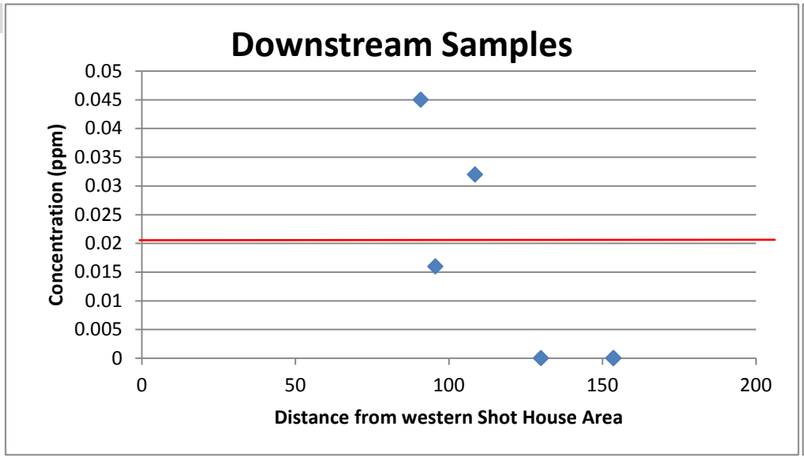
**EPA Region 5 Sed. Screening Value for Indeno(1,2,3-cd)pyrene = 0.200 ppm (shown on graph)**

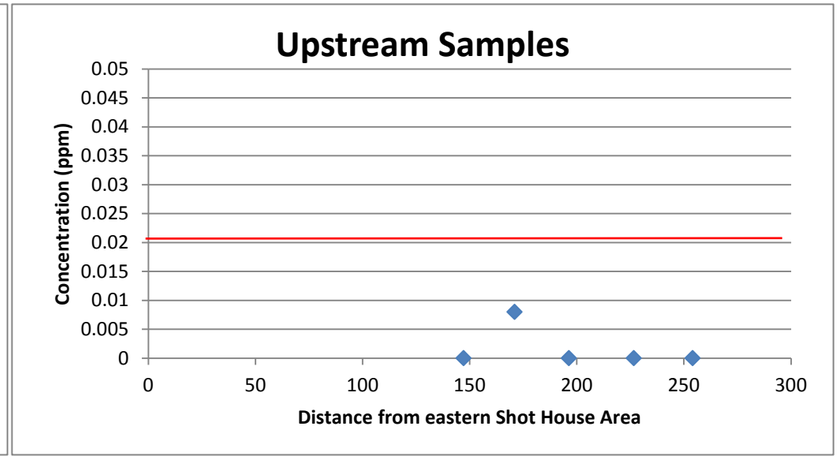


| Parameter | Distance | Results_PPM | Sample ID |
|---|---|---|---|
| 2-Mehtylnaphthalene | 254.1 | 0 | SD-1 |
| 2-Mehtylnaphthalene | 226.7 | 0 | SD-2 |
| 2-Mehtylnaphthalene | 196.3 | 0 | SD-3 |
| 2-Mehtylnaphthalene | 171 | 0.008 | SD-4 |
| 2-Mehtylnaphthalene | 147.2 | 0 | SD-5 |
| 2-Mehtylnaphthalene | 90.8 | 0.045 | SD-6 |
| 2-Mehtylnaphthalene | 95.6 | 0.016 | SD-7 |
| 2-Mehtylnaphthalene | 108.5 | 0.032 | SD-8 |
| 2-Mehtylnaphthalene | 130 | 0 | SD-9 |
| 2-Mehtylnaphthalene | 153.6 | 0 | SD-10 |
| 2-Mehtylnaphthalene | 153.6 | 0 | SD-10A |

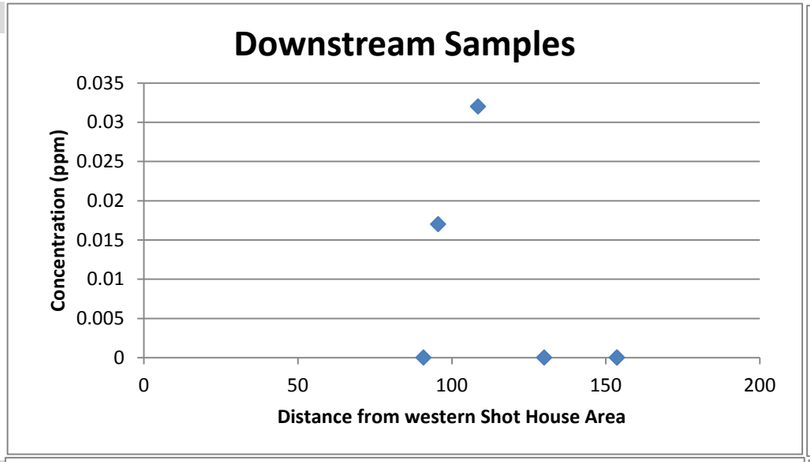
**EPA Region 5 Sed. Screening Value for 2-Methylnaphthalene = 0.0202 ppm (shown on graph)**

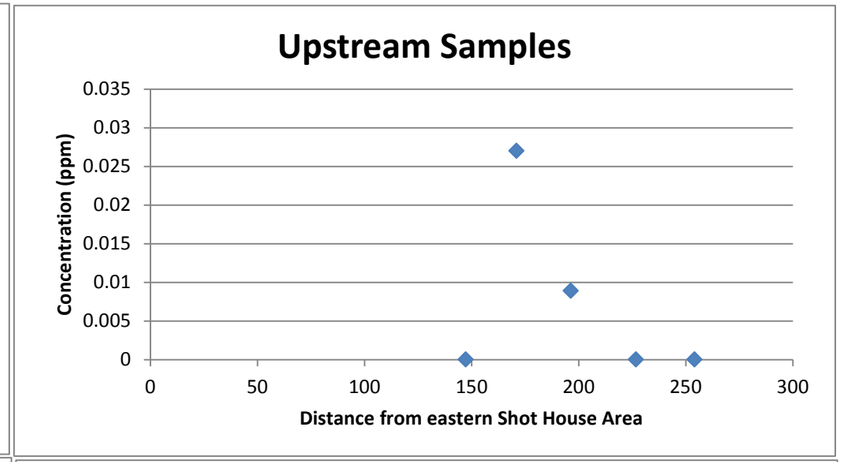



| Parameter | Distance | Results_PPM | Sample ID |
|---|---|---|---|
| Naphthalene | 254.1 | 0 | SD-1 |
| Naphthalene | 226.7 | 0 | SD-2 |
| Naphthalene | 196.3 | 0.0089 | SD-3 |
| Naphthalene | 171 | 0.027 | SD-4 |
| Naphthalene | 147.2 | 0 | SD-5 |
| Naphthalene | 90.8 | 0 | SD-6 |
| Naphthalene | 95.6 | 0.017 | SD-7 |
| Naphthalene | 108.5 | 0.032 | SD-8 |
| Naphthalene | 130 | 0 | SD-9 |
| Naphthalene | 153.6 | 0 | SD-10 |
| Naphthalene | 153.6 | 0 | SD-10A |

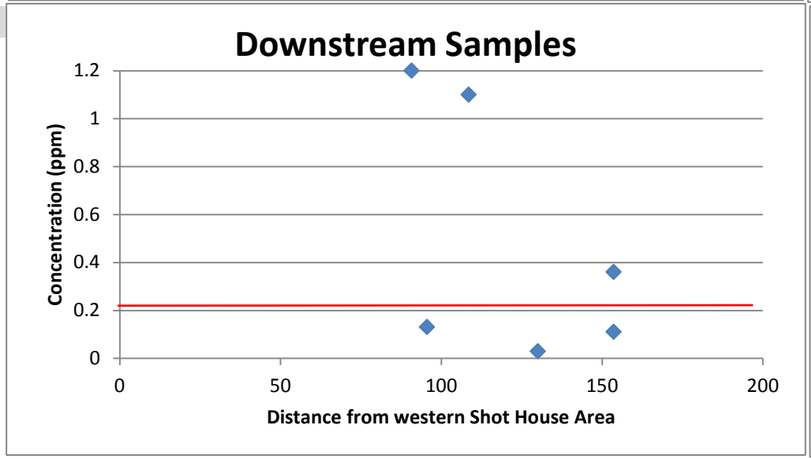
**MacDonald Consensus-Based TEC Value for Naphthalene = 0.176 ppm**

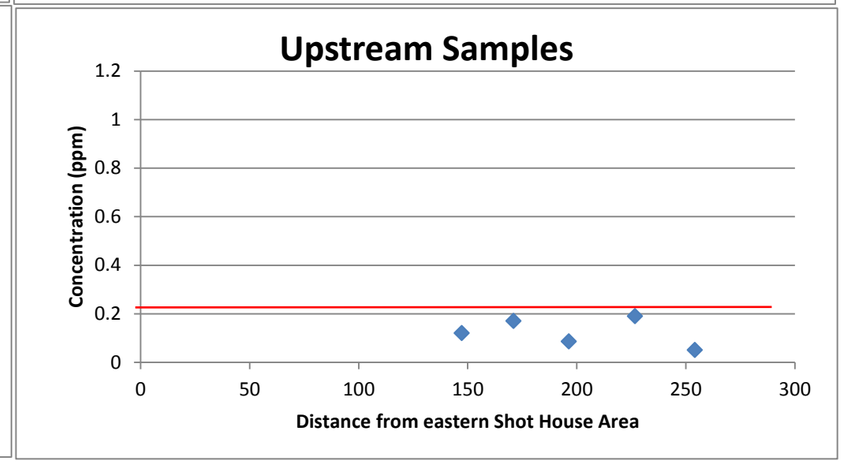



| Parameter | Distance | Results_PPM | Sample ID |
|---|---|---|---|
| Phenanthrene | 254.1 | 0.051 | SD-1 |
| Phenanthrene | 226.7 | 0.19 | SD-2 |
| Phenanthrene | 196.3 | 0.086 | SD-3 |
| Phenanthrene | 171 | 0.17 | SD-4 |
| Phenanthrene | 147.2 | 0.12 | SD-5 |
| Phenanthrene | 90.8 | 1.2 | SD-6 |
| Phenanthrene | 95.6 | 0.13 | SD-7 |
| Phenanthrene | 108.5 | 1.1 | SD-8 |
| Phenanthrene | 130 | 0.029 | SD-9 |
| Phenanthrene | 153.6 | 0.11 | SD-10 |
| Phenanthrene | 153.6 | 0.36 | SD-10A |

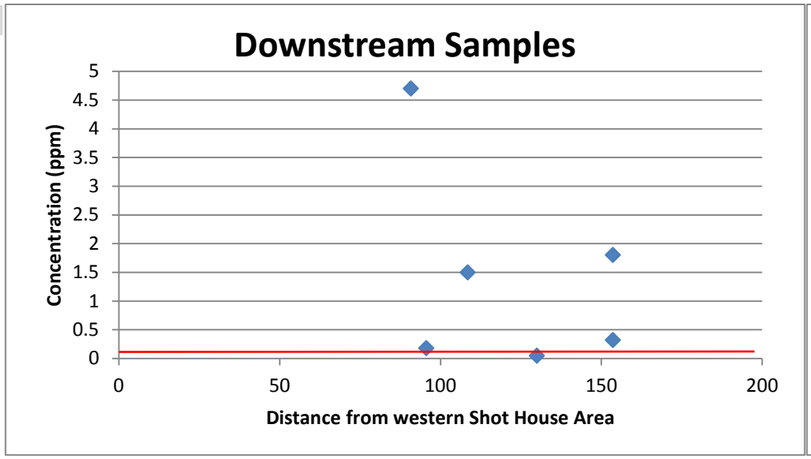
**MacDonald Consensus-Based TEC Value for Phenanthrene = 0.204 ppm (shown on graph)**

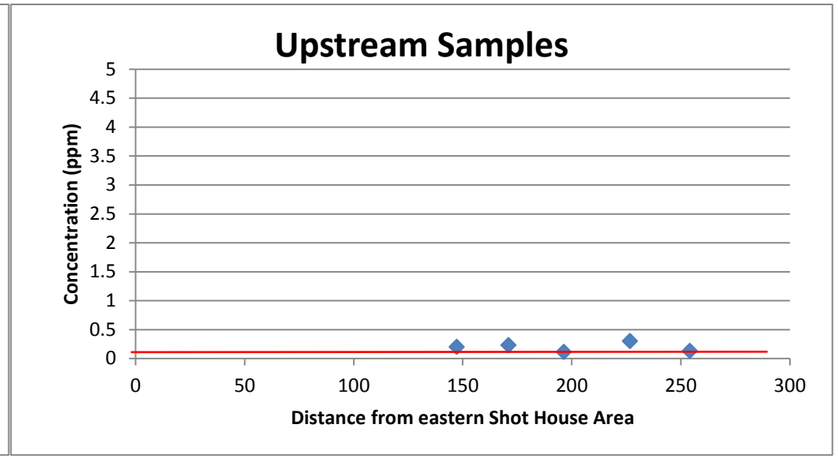


| Parameter | Distance | Results_PPM | Sample ID |
|---|---|---|---|
| Pyrene | 254.1 | 0.13 | SD-1 |
| Pyrene | 226.7 | 0.3 | SD-2 |
| Pyrene | 196.3 | 0.11 | SD-3 |
| Pyrene | 171 | 0.23 | SD-4 |
| Pyrene | 147.2 | 0.2 | SD-5 |
| Pyrene | 90.8 | 4.7 | SD-6 |
| Pyrene | 95.6 | 0.18 | SD-7 |
| Pyrene | 108.5 | 1.5 | SD-8 |
| Pyrene | 130 | 0.046 | SD-9 |
| Pyrene | 153.6 | 0.32 | SD-10 |
| Pyrene | 153.6 | 1.8 | SD-10A |

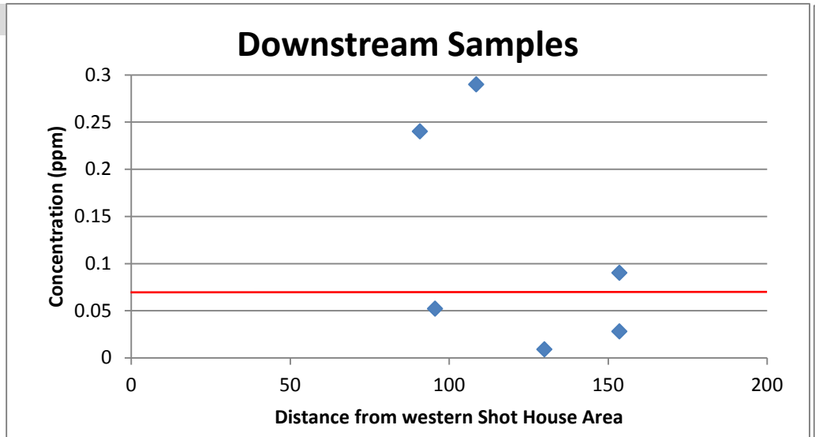
**MacDonald Consensus-Based TEC Value for Pyrene = 0.195 ppm (shown on graph)**

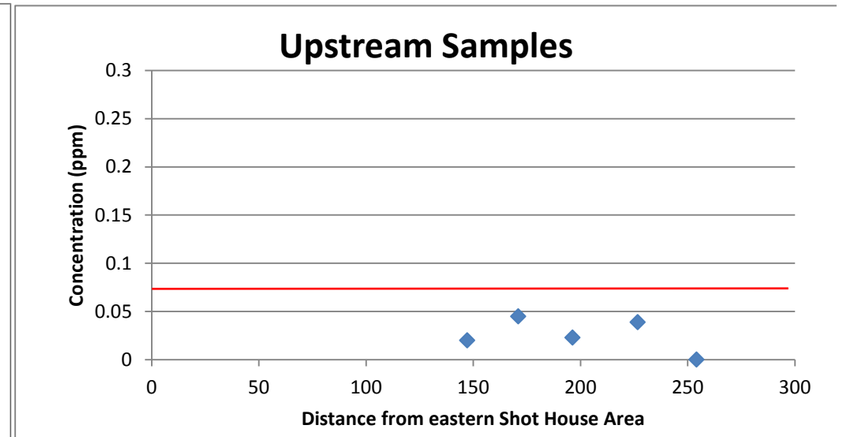



| Parameter | Distance | Results_PPM | Sample ID |
|---|---|---|---|
| Anthracene | 254.1 | 0 | SD-1 |
| Anthracene | 226.7 | 0.039 | SD-2 |
| Anthracene | 196.3 | 0.023 | SD-3 |
| Anthracene | 171 | 0.045 | SD-4 |
| Anthracene | 147.2 | 0.02 | SD-5 |
| Anthracene | 90.8 | 0.24 | SD-6 |
| Anthracene | 95.6 | 0.052 | SD-7 |
| Anthracene | 108.5 | 0.29 | SD-8 |
| Anthracene | 130 | 0.009 | SD-9 |
| Anthracene | 153.6 | 0.028 | SD-10 |
| Anthracene | 153.6 | 0.09 | SD-10A |

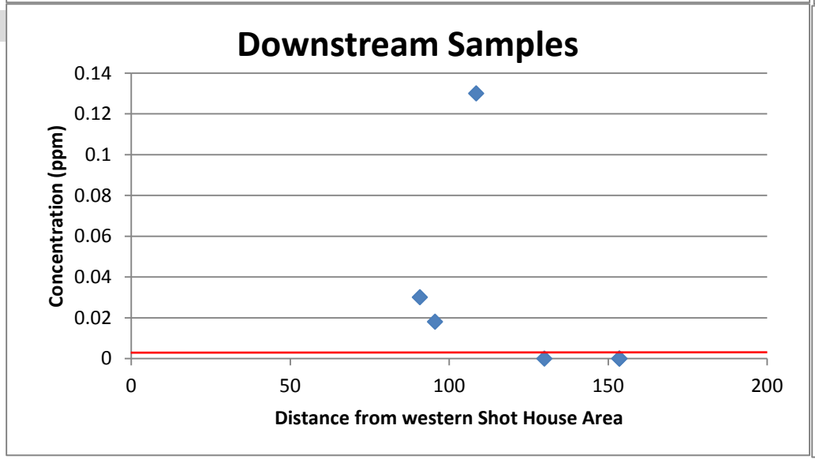
**EPA Region 5 Sed. Screening Value for Anthracene = 0.0572 ppm (shown on graph)**

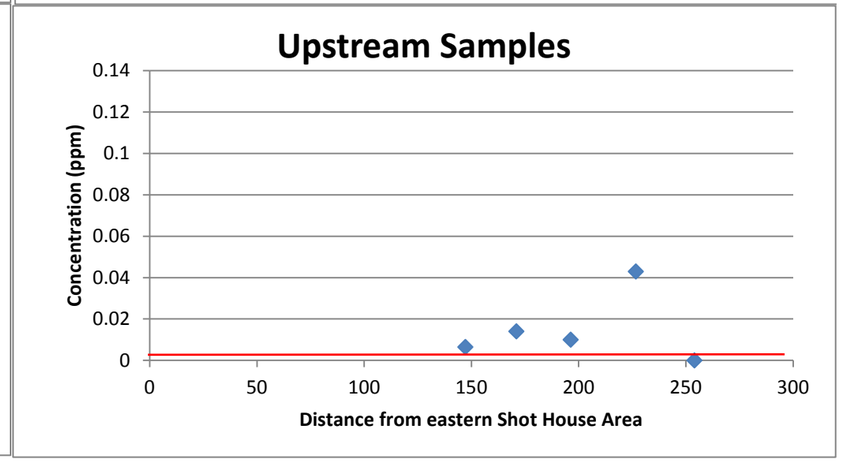



| Parameter | Distance | Results_PPM | Sample ID |
|---|---|---|---|
| Acenaphthylene | 254.1 | 0 | SD-1 |
| Acenaphthylene | 226.7 | 0.043 | SD-2 |
| Acenaphthylene | 196.3 | 0.01 | SD-3 |
| Acenaphthylene | 171 | 0.014 | SD-4 |
| Acenaphthylene | 147.2 | 0.0064 | SD-5 |
| Acenaphthylene | 90.8 | 0.03 | SD-6 |
| Acenaphthylene | 95.6 | 0.018 | SD-7 |
| Acenaphthylene | 108.5 | 0.13 | SD-8 |
| Acenaphthylene | 130 | 0 | SD-9 |
| Acenaphthylene | 153.6 | 0 | SD-10 |
| Acenaphthylene | 153.6 | 0 | SD-10A |

**EPA Region 5 Sed. Screening Value for Acenaphthylene = 0.00587 ppm (shown on graph)**



| Parameter | Distance | Results_PPM | Sample ID |
|---|---|---|---|
| Acenaphthene | 254.1 | 0 | SD-1 |
| Acenaphthene | 226.7 | 0 | SD-2 |
| Acenaphthene | 196.3 | 0 | SD-3 |
| Acenaphthene | 171 | 0.014 | SD-4 |
| Acenaphthene | 147.2 | 0.0064 | SD-5 |
| Acenaphthene | 90.8 | 0.034 | SD-6 |
| Acenaphthene | 95.6 | 0.024 | SD-7 |
| Acenaphthene | 108.5 | 0.08 | SD-8 |
| Acenaphthene | 130 | 0 | SD-9 |
| Acenaphthene | 153.6 | 0 | SD-10 |
| Acenaphthene | 153.6 | 0 | SD-10A |

**EPA Region 5 Sed. Screening Value for Acenaphthene = 0.00671 ppm (shown on graph)**